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SPECIAL ARTICLE.

THE MAKING OF A MODERN MEDICAL SCHOOL: A SKETCH OF RUSH MEDICAL COLLEGE.

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THROAT, AND NOSE, RUSH MEDICAL COLLEGE.

"We believe the school we this day open is destined to rank among the permanent institutions of the State. It will pass in time into other and better hands; it will live on, identified with the interests of a great and prosperous city." With these prophetic words did Daniel Brainard, the founder of the college, close his introductory address at its first session, December 4, 1843.¹

With a population in Chicago of less than eight thousand, but with a vast outlying territory of small but rapidly growing communities, where the physician was needed, but where remuneration for services was small, the hour was ripe for just such an institution as Rush in its infancy; the seed had been planted, the growth was to develop in the coming years.

The times demanded little then. The first session was of but sixteen weeks' duration, no preliminary requirements were expected save that the candidate should be twenty-one years old and of good moral character. For graduation there were required two years' attendance upon lectures (two years of practice were accepted in lieu of one course), largely repeated from year to year, three years' study with a reputable physician, and the presentation of a thesis on some medical subject. A faculty of four delivered the first course of lectures; James V. Z. Blaney being the Professor of Chemistry and Materia Medica; John McLean of Jackson, Michigan, the Professor of Theory and Practice of Medicine; M. L. Knapp of Waynesville, Illinois, Professor of Obstetrics and Diseases of Women and Children, Dr. Brainard heading the list as Professor of Anatomy and Surgery.

Dr. Brainard from the day of his arrival in the city of Chicago in the fall of 1836, until his death, October 10, 1866, occupied an exalted position in this western country. Coming from a family of educated people, he was afforded the best education that the times could supply, and having received a good common school and academic training, he at once began his medical studies and developed a studious habit thus early in his career. Two years with a preceptor in Whitesboro, N. Y., a year at a medical college in New York City, and another

year in Jefferson Medical College in 1834 completed his preparation. Then teaching for two years, Latin and French were acquired in his leisure hours. Two years in Paris in 1839 and 1840 added greatly to his knowledge from the advantages for study and observation there afforded. A course of lectures on anatomy was delivered at the University of St. Louis, to the chair of which he was elected in 1842. From the time of the opening of Rush College until his death he served it with pre-eminent ability. He was noted for his eloquence in the lecture-room and on the platform, and was distinguished as an operator and original investigator. His experimental work on the use of iodine in surgery and on bone repair made him famous. He received deserved recognition during his lifetime, and, while easily the most commanding figure in medicine and surgery in this great northwest, he should be classed among the most eminent men of his time in American medical history.

The line of succession as presidents of the college following his death includes the names of James V. Z. Blaney from 1866 to 1871, and Joseph W. Freer, 1871 to 1877. Dr. Freer was a graduate of the college in 1849, and almost immediately began medical teaching, devoting the remaining years of his life to the teaching of physiology, surgical pathology and histology. He was a man of fine character and quick perception. Dignified and undemonstrative, he was a superior teacher who left his impress upon students as one who knew, and had the faculty of imparting to others that knowledge.

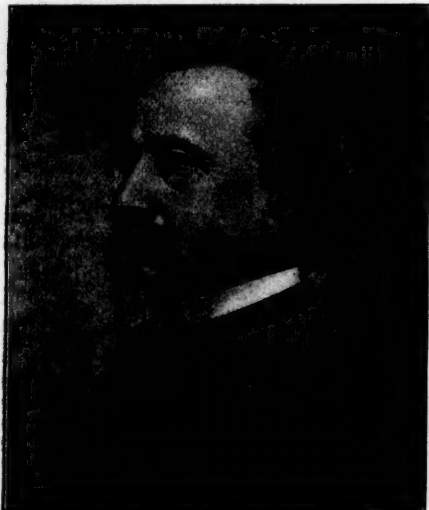
Following in the line of seniority in the faculty, Jonathan Adams Allen became president in 1877 and continued in that office until his death in 1890. In the days, not long since closed, when medicine was taught in our colleges largely by lectures, Dr. Allen will be remembered as a unique character, and one who fulfilled in large degree the requirements of such a position. With a mind well stored from ancient and modern literature, with an overflowing fund of anecdote, a ready wit and a fine command of language, he taught the truths of medicine in such forceful terms that in many a perplexing situation his students recalled the epigram and its lesson to the saving of the situation and their own reputations as physicians.

Edward L. Holmes, who had been a teacher in the college since 1870, next assumed the presidency, being chosen from seniority in the faculty, and occupying that position from 1890 until the affiliation with the University of Chicago, when the office was abolished. Closely identified with the college for a period of thirty years, with hopefulness and patience he advocated the higher

¹ The charter was granted by the Legislature of the State of Illinois in 1837, and was the first granted to an educational institution in the State.

education in medicine, hailing with satisfaction every forward step in the college, devoted to its interests with singleness of heart and with an unyielding purpose that it should stand for the best. Many of his ideals have been realized.

None of the men who were identified with the college during these eventful years deserved greater praise than Ephraim Ingals who



Daniel Brainard, M.D.

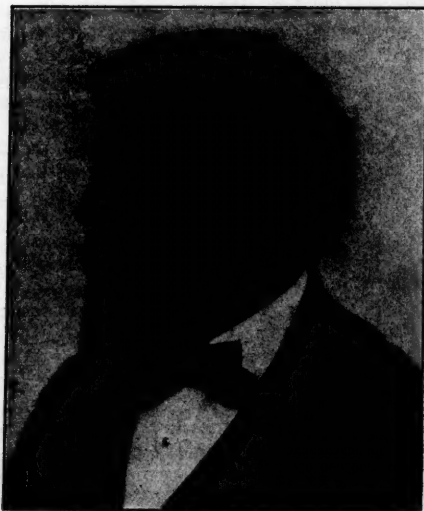
quietly passed away, Dec. 18, 1900, secure in the belief that his life's work was ended, and that he had earned the restfulness of the long sleep. A student of Dr. Brainard, graduated from the college in 1847, he became a professor of materia medica in 1859. In days of disaster he never faltered, in days of prosperity he longed for higher achievements. When Dr. Brainard died, and ruin seemed to menace like a grim specter the future of Rush College, he was one whose faith was sublime in the ultimate success of their efforts. He lived to see the high accomplishments of these late years.

Wm. H. Byford who was called to the professorship in obstetrics and diseases of women and children in 1859, and subsequently, in 1879, to the chair of gynecology, remaining thereafter on the faculty until his death May 20, 1890, was a grand man. Without early advantages in education, he was one of those men of sterling worth whose careers are carved out by individual effort, favored perhaps by the stress and circumstance of poverty and limited opportunities. A man of vigorous intellect, courtliness of manner, of gentle and kindly nature, he endeared himself to all. One of the fathers of gynecology he helped to place it on a plane of high excellence as a specialty. He was founder of the Woman's Medical College of Chicago, and president of its faculty and board of trustees till his death. His first contribution to medical literature in 1847

was a report of two Cæsarian sections performed by himself. He wrote the first book issued by a Chicago medical author, in 1864, a Treatise on Chronic Inflammations and Displacements of the Unimpregnated Uterus. His early advocacy of the use of ergot in the treatment of fibroids, in 1872, attracted wide attention. Many other contributions to the literature of medicine gave him rank among the best of those devoted to the treatment of diseases of women.

Another of the men who came to the college in her early history, and who had much to do with her name and fame was DeLaskie Miller, known and loved by every alumnus who listened to him from 1859 to 1889—thirty years of continuous service as her professor of obstetrics and diseases of women and children. He was eminently fitted for teaching, and his refinement of manner, courteous treatment of his pupils and delightful personality endeared him especially to his students to whom his lectures were ever a source of sincere pleasure and profit. Though retired from participation in the teaching of medicine, he still lives at the age of eighty-three years, actively devoted to the interests of the school, as president of her board of trustees.

It would be interesting to note the faculty changes from year to year necessitated by the gradual enlargement of the scope of medical teaching; so too would be of interest the mention of the many self-sacrificing, earnest and



Edward L. Holmes, M.D.

faithful men who have made the college what it is to-day, and have counted no sacrifice too great for the growing demands for better facilities and higher learning in medical education, but the limitation of this article will not permit it.

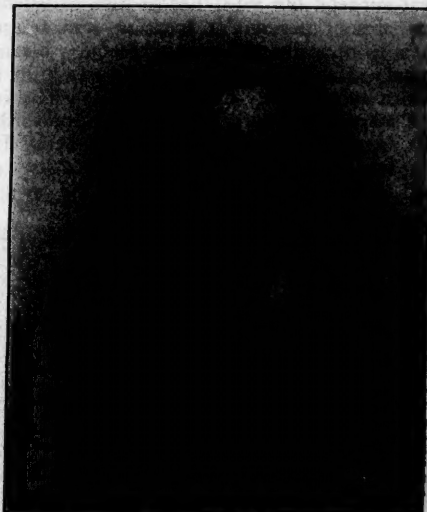
In a little wooden building of two stories, now 49 Clark Street, was the office of Dr. Brainard,

and at the rear of the building was a little shed attached. This was the first Rush Medical College building. In the shed dissecting was carried on, and in the building twenty-two students sat upon rude benches to listen to the lectures of the four professors for the sixteen required weeks, and at the end of the session one man from the class received the first diploma of the college in course, two practitioners receiving at the same time the honorary degree of M.D.

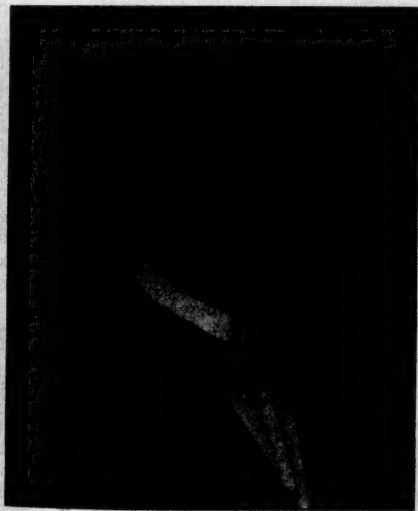
Following the first commencement there was erected in the summer of 1844, at the southeast corner of Indiana and Dearborn Streets, a one-story wooden structure at a cost of \$3,500. In this building was an amphitheater, dissecting-room, and a chemical laboratory. The first course in chemistry had been theoretical only, owing to the lack of laboratory facilities. Forty-six students attended this course, and at the end of the year there were eleven graduates. For eleven years this structure proved fully adequate to the requirements of the college. In this building Austin Flint, whose name and fame became familiar in later years to every medical man in the country, and whom the world delighted to honor, gave a course of lectures on the Institutes and Practice of Medicine. In 1855 it was found necessary to rebuild and enlarge the building; this was done at an expense of about \$15,000. This structure provided well for two hundred and fifty students. The bonds

made for dissecting and chemistry, but the main feature was this amphitheater to provide for lectures to large classes, the entire matriculated body listening to them from the beginning of their course.

In 1871 came the appalling disaster to our city. The usual course had begun under favorable conditions when, on the night of October



De Laskie Miller, M.D.



Ephraim Ingals, M.D.

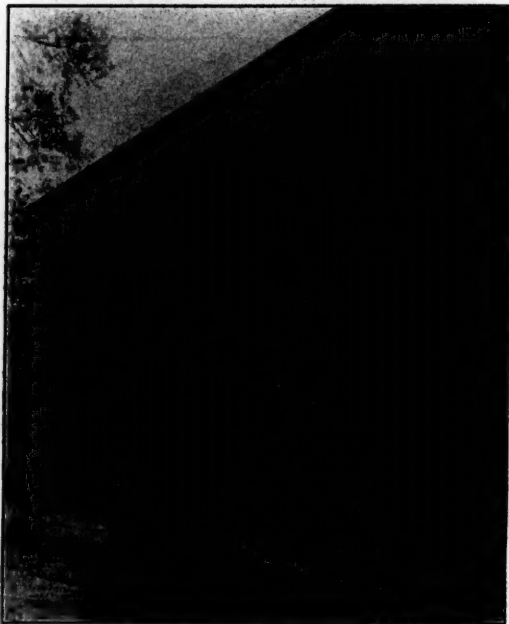
which were issued to provide the necessary means were largely taken by members of the faculty. Twelve years later (1867) the cornerstone of another addition to the college building was laid, and it was soon completed. In this building were two amphitheaters, one above the other, the upper one seating six hundred and twenty students. Adequate provisions were also

gth, the fire-fiend swept like a besom of destruction over the city, and in a few hours the college property was a smoking mass of ruins—a vacant lot, heavily mortgaged, was all that was left; the personal property was swept away; students and faculty were scattered, many of them deprived of homes and property. The situation was desperate, but with the incomparable courage which was demonstrated in every department of life and industry at that time, the classes were called together in a few days, lectures were resumed in the amphitheater of the Cook County Hospital, and dissecting was carried on in rooms kindly provided by the Chicago Medical College. Fortunately rare opportunities were thus afforded the classes for clinical instruction in this use of the Hospital.

Realizing the advantages to be derived from the vast clinical material that the future would offer at the County Hospital, the time seemed opportune for locating in close proximity to that institution. The old hospital building was fast becoming inadequate to the demands of the public and, until a new site was selected, it was deemed good policy to be contented with temporary quarters. Therefore the famous college "under the sidewalk" was supplied. It was a poor and mean structure, of unplastered brick, largely below the street level, but it contained an amphitheater and a chemical laboratory and a dissecting-room. The writer, then a college-stu-

dent, remembers distinctly the impression made by the immaculate Prof. Gunn, before the days of antiseptics, as he appeared in the arena in this building in Prince Albert coat, light trousers, polished shoes and linen to match, as if dressed for an afternoon reception, performing his brilliant operations before a class of eager spectators, with results, too, that could afford little room for criticism of methods. He was not only a great surgeon but a teacher of rare excellence.

The present permanent location was selected diagonally opposite the site of the new County Hospital. Here in 1875 and 1876 was built the structure substantially as it is to-day. The cost of the lot and ground, \$75,000, was subscribed by the faculty almost entirely, bonds being furnished for such subscriptions. Prof. Allen delivered the address, and also that at the opening



Laboratory Building.

of the college in the new building at the beginning of the following year.

With the development of the laboratory idea in the teaching of the science of medicine came demands for enlarged laboratory facilities, so that in 1893 on a lot opposite the college structure was erected a five-story building with a frontage of 100 feet to be devoted entirely to laboratory and recitation work. This provided also a large, light room on the top floor, with cemented floors and walls, iron and glass tables, and every modern convenience for anatomical work. During the present year another building (to cost \$112,000) is being erected with money given by the faculty. It has been named the Nicholas Senn Hall, in honor of the eminent surgeon and devoted teacher whose generosity

made it possible. The building, which is being rapidly pushed to completion, covers a ground space of 40x90 feet, and is seven stories high. The basement and first three floors are to be utilized for a free dispensary, the fourth and fifth floors for clinical laboratories and recitation-rooms, the upper floors for surgical and medical amphitheaters, while the college library will occupy a room fitted to its rapidly increasing equipment on the lower floor of the old building. This much for the evolution of equipment, for the making of a modern medical college.

Possibly a brief sketch of the outgrowth of educational methods can be conveyed in a short résumé of what has been taught in the college, beginning with the faculty of four. In 1843 the essentials were theory and practice of medicine, anatomy and surgery, chemistry and materia medica, obstetrics and diseases of women and children. Who shall say, when the men and the methods of those days are reviewed, that they did not serve well and successfully their day and generation? With the following year came additions to the faculty, the separation of anatomy and surgery, the combination of materia medica and therapeutics, and chemistry and pharmacy were united. In the announcement for 1845 is made, to students of to-day, the rather remarkable statement, in view of the modern equipment of a college, that a noteworthy addition to the apparatus was "a fine microscope of sufficient power to exhibit the blood-globules, spermatic animalcule, the elementary tissues and pathological structures." Fifty-one surgical cases and operations in a year at that period does not cover a week's exhibit in the college of to-day!

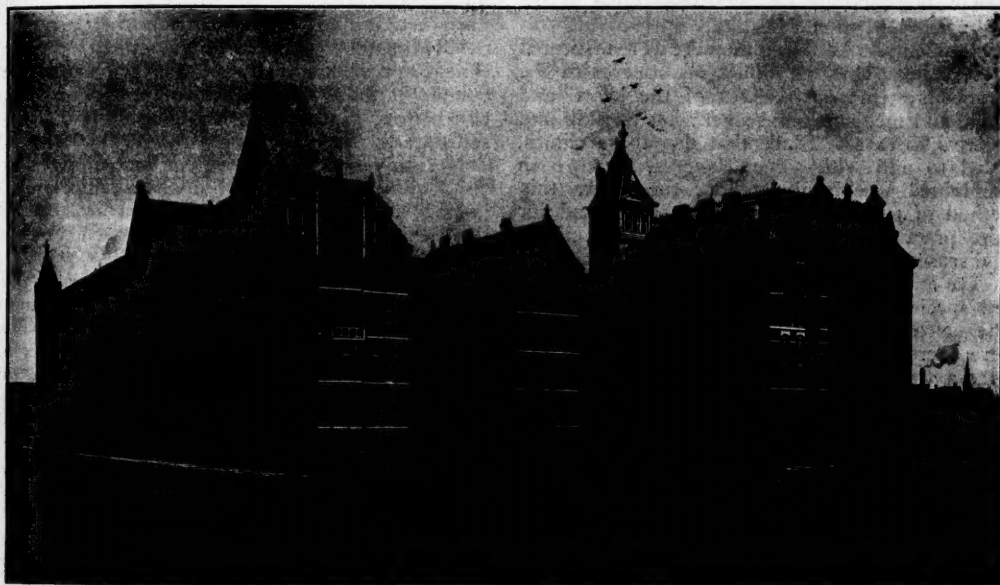
As early as 1847 the college was fortunate in establishing a hospital connection, which, though small, afforded practical clinical instruction to the students.

In 1848 the establishment of a chair of physiology and pathology was announced, which was filled the following year by Prof. N. S. Davis, Sr., the "Nestor of the American Medical Association." The desirability of an extension of the course of instruction which had been given in two sessions of sixteen weeks each was becoming apparent, and a spring course of lectures of eight weeks was then given, and in the courses offered was one on auscultation and percussion by Prof. Brainard. In 1850 the hospital facilities were enlarged by utilization of the clinical material at the United States Marine Hospital, which was in the immediate neighborhood, and to whose wards the students were admitted. For the first time there was made an additional requirement for graduation, namely, "a hospital attendance of at least one term." In 1855 we find provision made for medical jurisprudence, and for comparative anatomy. The time had not fully come in 1848 for an extension of the period of study in the medical college and the spring course had been abandoned, but in 1859 the work was revived and an extra session was

again undertaken as a spring course. At this time, too, a growing difference of opinion as to the desirability of grading the courses of study came to a climax, resulting in the resignations of several members of the faculty and the establishment of another medical school in Chicago with this idea dominant. It was then, too, that Prof. Allen was called from Michigan—"Uncle Allen," the affectionate sobriquet of students in after years. There was then organized what was termed the "Preparatory School of Medicine," and the department then and later was manned by many of the younger teachers whose influence in the development of medical teaching has been and is forcefully exerted in the advancement of the present day. It was the initiative of an extended course for attendants

and ear was added to the curriculum and later, in 1866, clinics at the County Hospital were announced and postmortems before the class, and in addition daily clinics at the United States Marine Hospital in surgery and diseases of the chest, and two years later a chair of clinical medicine and diseases of the chest was established. In 1868 Dr. Charles T. Parkes, a recent graduate, assumed the position of demonstrator of anatomy. For twenty-three years, until his untimely death, his service as demonstrator and professor of anatomy and professor of surgery was marked by an enthusiasm and faithfulness that left its lasting impress upon the college.

The graduating thesis, a time-honored custom in the medical school, was omitted from 1868.



Rush Medical College and Presbyterian Hospital.

of the regular session, which continued without interruption until the extension of the regular winter course in 1893 to eight months. The optional spring course, beginning with an attendance of about twenty, grew to have about two hundred and fifty before it was discontinued.

The War of the Rebellion came and with it another special field of study, military surgery, which was offered in a preliminary course by Prof. Brainard. We find also the subject of toxicology, the presentation of the surgical anatomy of special regions, and comparative anatomy of the digestive organs, added to the curriculum.

The hospital work at this time was also interrupted by the War, the City hospital being utilized by the government as an eye and ear hospital; at the close of the War the institution passed into the hands of the County.

In 1863 the subject of the diseases of the eye

There had been during these years, a gradual development in the segregation of different subjects, so we find provision made in 1872 and soon afterward for the following subjects in the spring course: principles and practice of medicine; materia medica and therapeutics; anatomy, chemistry, physiology and histology, obstetrics, toxicology and medical jurisprudence, pathology, microscopic anatomy, and the use of the microscope (for many years, however, this subject received but perfunctory attention), diseases of the eye and ear, diseases of the brain and nervous system, diseases of women and children, dermatology and syphilis, and diseases of the chest and physical diagnosis. Thus, for many years, the spring course, furnished, at the hands of young and selected men a résumé of the entire subject of medicine as then taught. A *concours* was held for the selection of teachers for this

course. Each candidate was required to appear on a certain evening in the presence of the faculty and students and lecture for at least twenty minutes on some topic selected either by himself, or by lot. The selection from merit as a lecturer well illustrates the importance attached to facility as a public speaker at this period in medical teaching. The candidates who delivered the best lectures were selected in this *con-cours*. From these men, in the spring courses, there were constant promotions to the regular staff, and while the course was entirely separate from that given in the winter the selection of it by a large number of the students from year to year was evidence of the necessity that would in time lengthen the regular winter course.

The clinical work had, except in the department of surgery, up to 1877, been done in the dispensary and in the hospitals open to the college students. At that time there were instituted in the college building clinics on diseases of the nervous system; on diseases of the heart and lungs, and medicine; and soon after on skin and venereal diseases. Since that day these clinics, added to and with some changes, have been maintained weekly throughout the year, this method of teaching having met the demand for more practical work. Soon were added clinics in diseases of children, gynecology, diseases of the eye and ear, and in 1884 a clinic on the then new specialty of diseases of the throat and nose. The surgical clinics, also, about this time, were increased to two a week and in 1890 to three a week. These clinics were supplied with ample material for many years from the Free Dispensary connected with the college.

In 1883, on a lot adjacent to the college building, the college began the erection of a hospital with a single contribution by a relative of Prof. Ross, and others by members of the faculty. After \$25,000 had been expended, it was deeded to an association in the interest of the Presbyterian denomination, and from it has grown the great Presbyterian Hospital, by agreement attended largely by the faculty of the college. Since its addition to the clinical facilities there have been maintained surgical and gynecological clinics that would vie with the largest in the world in the wealth and variety of material offered, and the contributions to the other clinics have been of increasing value. In obstetrics it affords the students personal contact with cases.

We have now come down to the later years when changes have come with startling rapidity. We can do no better than to speak briefly of several important ones of recent date, and the present position of the college, as an example of a "modern medical school."

Recognizing as early as 1874 the value of a university alliance, the full fruition of the hopes of the faculty of the college in this particular were not realized until 1898 when Rush became affiliated with the University of Chicago. As a preliminary to this connection, the college, having a debt of \$71,000, took immediate steps to

pay it; \$25,000 was given by Dr. E. Ingals and \$25,000 by Dr. N. Senn, the remainder being contributed by various other members of the faculty, and the entire equipment was turned over to a new board of trustees, none of whom were connected with the teaching force of the college.

In reviewing the history of Rush College thus far it will be seen that the laity has contributed almost nothing to the education of its physicians in this college, although money without stint has been given to general educational institutions, and many other special ones, and to the founding and maintenance of hospitals. What is true of Rush is true of most other medical schools in America. In other words, the wealthy who demand for themselves the highest skill in their physicians have not in the West, and not until recently in the East, contributed of their affluence to make them so. Why should not medicine now be the recipient of the bounty of those who desire to benefit mankind, to whom as a profession it is singularly and unselfishly devoted?

Not only was this entire equipment given by the faculty, but it entered upon a campaign of distinct advance in every line in medical education, which necessarily greatly increased the cost of instruction.

The Quarterly System.—In December, 1898, the faculty committed itself to the quarterly system, that is, the division of the academic year into quarters, instruction being given throughout the year. This permitted the entrance of students at the beginning of any quarter and graduation at the end of any quarter when all requirements have been fulfilled. Attendance is required before graduation on twelve quarters, and at least forty-five months must elapse between the date of matriculation and the date of graduation. Instruction in all departments continues throughout each quarter, or in special cases, for a single term, that is, half of a quarter.

The experience of two years has amply demonstrated the wisdom of this arrangement for the following reasons: The expensive equipment is in use throughout the year; a student may begin the study of medicine at the opening of any quarter; special course students may avail themselves of the summer quarter, this season appealing strongly to practitioners of medicine, and many find it advantageous to continue their medical studies throughout the year; others who are paying their own way often find employment more readily during the fall or winter sessions; clinical material is usually abundant in the summer quarter; it favors the concentration of courses, as it has been found much more conducive to the mastery of a subject to have it presented frequently over a short period of time, rather than but once or twice a week throughout the year, as was formerly the custom; and finally, it lends itself admirably to the systematizing and grading of courses. Perhaps one of the most advantageous features of the quarterly sys-

tem is its stimulation of all members of the faculty to do their very best work. By it the younger members, especially the assistant professors and instructors, have quite as good an opportunity to demonstrate their teaching qualities as the older professors, thus inciting to the best work in every department.

The Elective System.—Another advanced step was taken July 1, 1899, namely, a number of courses in the junior and senior years were made elective, the student being allowed to select from the list of elective courses a number, including both required and elective studies sufficient to insure him credit for about twelve majors a year.¹

All the courses now offered in the junior and senior years are elective. Practical experience has already demonstrated that a student can, under certain restrictions, better average his work and follow out special inclinations adapted to his tastes, abilities, and needs under this system. A new spirit has seemed to prevail in the faculty and there is found an infectious emulation prevalent which means that it is understood that good work counts and subjects poorly taught are likely to be neglected by a discriminating student body. With the spirit of reform in medical instruction, has come in this school a rapid advance in preliminary requirements, so that preparation for admission must now cover a period of four years in a secondary school (high school or academy) of high grade, from which specific credits are exacted in each subject. For the sessions of 1902-3 and 1903-4 the student must present a certificate of admission to the sophomore class in an institution of equal rank with the University of Chicago. For the session 1904-5 a student must be prepared to enter the junior class.

Transfer of the Freshman and Sophomore Classes to the University.—In utilizing its University connection a radical step has just been taken in the separation of what may be termed the purely scientific or preclinical from the practical or applied scientific study of medicine. The art of medicine, it is hoped, may in the near future be better taught by an additional year of work in a hospital before a diploma is awarded. The University, magnificently equipped for the work, offers instruction in the following branches, covering the freshman and sophomore years of the medical college: Anatomy, gross and microscopic; neurology, embryology, physiology, physiological chemistry, inorganic, organic, and analytical chemistry, toxicology, pathology, bacteriology, and pharmacology. These two classes will be taught at the University, while the work of the third and fourth years only will be done entirely at the medical school. With this transference of the work has come

the admission of women to the courses of the first two years, following out the established policy of the University in the co-education of the sexes. Ten years' experience has amply demonstrated the wisdom of that policy. Its adoption for the final two years of the medical course has been successful elsewhere; why should it not be, even in a greater degree, in Rush College?

In sketching thus roughly the making of a modern medical college, one can but be astounded, in comparing the school of only half a century ago with the school of to-day, at the remarkable advancement of medicine, especially during the closing decade of the nineteenth century. The fact is evident that the forward march in educational methods everywhere in this country finds in its vanguard the medical profession, now, as ever, unsatisfied with the achievements of the past, pressing still onward and upward in their dedication "to the quest of knowledge that may lessen pain and prolong life."

34 Washington Street.

ORIGINAL ARTICLES.

ON THE NATURE OF THE PROCESS OF FERTILIZATION.¹

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SINCE the time of Leeuwenhoek and his pupils (1677) it has been known that the fluid secreted by the male generative organs contains spermatozoa. The earlier observers noted the active movement of these innumerable minute bodies in the fresh fluid and assumed them to be parasitic animalcules, "sperm animals." A century later, about 1786, Spallanzani demonstrated that the fertilizing power of the semen is possessed by the spermatozoa and not by the liquid portion, since the semen loses its potency when the spermatozoa are separated from it by filtration. Kölliker, in 1841, proved that the spermatozoa are formed from the cells of the testis and, therefore, are not parasites as the earliest observers had assumed, but, like the ova, are derived directly from the parent-body. In 1865, Schweigger-Seidel and La Valette St. George showed that the spermatozoön, like the ovum, is a peculiarly-modified single cell of extraordinary minuteness, containing a nucleus and cytoplasm, and on the whole morphologically equivalent to other cells. In 1875, O. Hertwig established the fact that normal fertilization of the ovum is brought about by immediate union with but one spermatozoön.

Although Leeuwenhoek had assumed that the spermatozoa must penetrate the ova in order to effect proliferation, nearly two centuries passed before the fusion process was actually observed.

¹ The substance of this paper was given by the author at a recent meeting of the Society of Physiological Chemists, New York City.

¹ A major course is defined as a didactic or recitation course, occupying five hours a week for one quarter (a total of sixty hours), or a laboratory, practical, or clinical course occupying ten hours a week for one quarter (a total of one hundred and twenty hours). A minor course is a didactic or recitation course occupying five hours a week for six weeks, or a laboratory course occupying ten hours per week for a similar period.

It was first described in detail by Fol in 1879. "In every known case an essential phenomenon of fertilization is the union of a sperm-nucleus, of paternal origin, with an egg-nucleus, of maternal origin, to form the primary nucleus of the embryo."

The exact nature of the process which causes proliferation of the fertilized egg is not yet understood. During the past few years important additions to the facts bearing on this question have been made by Loeb, whose well known studies of the mechanics of life phenomena have not only added greatly to our exact knowledge of biological events, but, also, have shown the important influence which the modern physico-chemical theories may have upon our understanding of animal functions.

Loeb had come to the conclusion, as a result of numerous and varied experiments, that "something in the constitution of the sea-water prevented the unfertilized eggs of marine animals from developing parthenogenetically." It had been known for some time that the unfertilized ova of arthropods, echinoderms and worms segment into a few cells (2-4) when left for a comparatively long time in sea-water, but this was generally considered a pathological phenomenon. In his earlier experiments Loeb kept unfertilized eggs of a common species of sea-urchin for two hours in sea-water whose osmotic pressure was slightly increased by the addition of various electrolytes. When the eggs were returned to normal sea-water they soon began to segment, and blastulæ, gastrulæ and plutei, which appeared to be normal in every respect, rapidly developed. In brief, the general effect in the production of the embryo was apparently the same as that ordinarily caused by spermatozoa. These same results have been obtained by Loeb with the eggs of other animals and have been verified repeatedly by other observers, including the author.

In one of his first communications of the results of the work just referred to, Loeb says: "From these experiments it follows that the unfertilized egg of the sea-urchin contains all the essential elements for the production of a perfect pluteus. The only reason that prevents the sea-urchin from developing parthenogenetically under normal conditions is the constitution of the sea-water. The latter either lacks the presence of a sufficient amount of the ions that are necessary for the mechanics of cell division (Mg, K, OH or others) or it contains too large a quantity of ions that are unfavorable to this process (Ca, Na or others), or both. All the spermatozoön needs to carry into the egg for the process of fertilization are ions to supplement the lack of the one or counteract the effects of the other class of ions in the sea-water or both. The spermatozoön may, however, carry in addition a number of enzymes or other material. The ions and not the nucleins in the spermatozoön are essential to the process of fertilization. . . . I consider it possible that only the ions of the blood prevent the parthenogenetic origin of em-

bryos in mammals and I think it further not impossible that a transitory change in the ions of the blood may also allow complete parthenogenesis in mammals."

At a somewhat later period in his work on marine animals, Loeb stated: "The spermatozoön not only starts the development of non-parthenogenetic eggs, but it is also the bearer of the hereditary qualities of the male. From our experiments it becomes evident that these two functions of the spermatozoön are not necessarily bound together, for nobody would assume for an instant that the hereditary qualities that are carried by the spermatozoön could be imparted to the egg by a change in the inorganic constituents of the sea-water. We have learned to attribute the different activities of a cell to different enzymes. We must in future consider the possible or probable separation of the fertilizing qualities of the spermatozoön from the transmission of hereditary qualities through the same. . . . The bulk of our protoplasm consists of proteid. . . . The proteids are characterized by two qualities which are of the utmost importance in the analysis of life phenomena. The proteids change their state very easily, and readily take up or lose water. . . . The agencies which affect these two variable qualities of the protoplasm most powerfully are, first of all, certain enzymes. . . . Almost equally powerful are ions in certain concentrations. . . . The third agency is temperature. In our experiments it was evidently the second factor which affected the condition of the colloids." The latter sentence refers, naturally, to the colloids of the ovum.

Subsequent experiments on sea-urchins enabled Loeb to give a more definite answer to the question of the nature of the process of fertilization. He found that an increase in the osmotic pressure of the sea-water through the addition of cane sugar or urea can produce parthenogenesis. "This proves conclusively," says Loeb, "that the development of the unfertilized egg is produced through an increase in the concentration of the surrounding solution. As it is immaterial whether the increase in the osmotic pressure is brought about by electrolytes or non-conductors, there can be no doubt that the essential feature in this increase in the osmotic pressure of the surrounding solution is a loss of a certain amount of water on the part of the egg. . . . A consequence of the loss of water on the part of the egg is an increase in its osmotic pressure. The osmotic pressure inside the egg is furnished chiefly or almost exclusively by electrolytes. It is thus not impossible that the ions in the egg, if their concentration is raised, bring about that change which causes the egg to develop. If we assume that the spermatozoön starts the development of the egg in the same way as in the case of artificial parthenogenesis, it follows that the spermatozoön must possess more salts or a higher osmotic pressure than the eggs. . . . But there is no reason why the

spermatozoon should not bring about the same effects that we produce by reducing the amount of water in the egg, in some different way. . . . It seems as if the liquefaction of the nuclear membrane and other constituents of the nucleus were a prerequisite for cell division." Possibly this liquefaction is accomplished by enzymes.

In his last paper, after many additional experiments on marine fauna, Loeb stated that "the bridge between the phenomena of natural and artificial parthenogenesis is formed by those animals in which physical factors decide whether or not their eggs develop parthenogenetically. In plant lice parthenogenesis is the rule only as long as the temperature is high or the plant has plenty of water. If we lower the temperature or let the plant dry out, sexual reproduction occurs. The drying-out of the plant causes the tissues of the lice to lose water. The same factor, loss of water, makes the artificial parthenogenesis of echinoderms and chætoperus possible. In plant lice the effect is of the same kind, only in the opposite direction."

Further on in the same communication, Loeb adds: "The general opinion concerning the rôle of the spermatozoon in the process of fertilization is that it acts as a *stimulus*, and that as such it starts the development of the egg. . . . If we consider the fact that the eggs show at least a beginning of segmentation under 'normal' conditions, the act of fertilization assumes a different aspect. The spermatozoon can no longer be considered the *cause* or the *stimulus* for the process of development, but merely an agency which *accelerates a process that is able to start without it*, only much more slowly. Substances that accelerate chemical or physical processes which would occur without them are called catalyzers (Ostwald). According to this definition we may assume that the spermatozoon carries a *catalytic substance* into the egg, which *accelerates the process that would start anyhow but much more slowly*. . . . It would be wrong to say that the *K-ions* are the *stimulus* that causes the developmental process. They merely *act as catalyzers, accelerating a process that would otherwise proceed too slowly*. The loss of water on the part of the egg-cell must have a similar effect, but possibly a less direct one. It may be that the loss of water alters the chemical processes in the egg in such a way as to give rise to the formation of a substance which acts catalytically. . . . The introduction of the catalytic substances which accelerate the processes of development saves the life of the egg. This may be made intelligible on the following assumption. Two kinds of processes are going on in the mature egg after it has left the ovary. The one leads to the formation of substances which kill the egg; the other leads to the formation of substances which allow growth and cell division and are not poisonous. We may use as an illustration Pasteur's well-known experiments on the behavior of yeast cells in the presence and absence of atmospheric oxygen. In

the presence of oxygen the yeast cells multiply on a sugar solution, while the zymase effect is comparatively small. In the absence of oxygen the multiplication of cells is limited or may stop, while the zymase effect becomes more prominent. The products of alcoholic fermentation are comparatively harmless for the yeast cell, and for this reason an increase in the fermentative activity of the cell does not cause the death of the yeast. I imagine that matters are similar in the mature egg-cell after it has left the ovary, with this difference, perhaps, that the substances formed (by fermentation?) in the egg-cell are more poisonous for the egg than the alcohol and the other products of fermentation are for the yeast. The process that causes the death of the egg-cell and the one that causes cell division are at least partly antagonistic. They are both inhibited by a low temperature, so that in this case death does not occur, although no cell division is possible. If we succeed in finding a substance which accelerates the process of cell division at the normal temperature, this will at the same time lead to a suppression or a reduction of the antagonistic process that shortens life. In the case of the egg of chætoperus a trace of K-ions acts as such a catalytic substance; possibly a trace of H-ions; and perhaps certain substances that are formed when the egg loses a certain amount of water. For the echinoderm egg we know at present only the last factor. In addition there are the catalytic substances carried or produced by the spermatozoon (ions? enzymes?). But there are certainly other catalytic substances, as is proved by tumors and galls, in which the variety of structures corresponds to an almost equal variety of parasites. We do not need to assume a specific parasite for each kind of tumor. Teratomata may be explained on the basis of the parthenogenetic tendency of the mammalian egg in connection with some chemical change that furnishes the catalytic substance. But it is not impossible that even in benign tumors, such as a teratoma, the catalytic substance may be due to parasitic organisms.] It is very important to realize that the introduction of catalytic substances into the egg does not prolong its life unless the egg has reached a critical point determined by two sets of conditions. The one is the maturity of the egg, the other the change of conditions connected with the egg leaving the ovary. . . . The fact that there is an age limit for the development of carcinoma may be a similar phenomenon. The catalytic substances which are given off by the cancer parasite may not be able to bring about cell division in the epithelial cells unless the latter have reached a critical point, which is at least partly determined by the age of the individual."

Among the catalytic substances which Loeb has constantly had in mind in his brilliant observations in this connection are enzymes, as has already been indicated. With the advice and many helpful suggestions of Professor Loeb, the writer, working in Prof. Loeb's laboratory at

Wood's Holl, recently attempted to ascertain whether any experimental justification can be found for the assumption that the spermatozoön carries substance into the ovum which effects proliferation by zymolysis.

Pieri appears to have been the first to give this question experimental examination. Several years ago (1897) he reported that he had extracted soluble enzyme from the testicles of two varieties of sea-urchin, which had the power to bring about segmentation of ova of the same varieties. The enzyme, which he called "ovulase," was obtained, he said, by merely shaking the testicles in distilled water or sea-water. As he himself was not sure that all spermatozoa were killed in the extraction process, it seems certain that his results were due not to "ovulase," but to live spermatozoa.

Dubois, in 1900, arrived at the conclusion that natural fertilization comes about through the action of a fecundative ferment. He claims that he was able to separate such a body, "*d'une zymase fecundante*," from the testicles of a variety of sea-urchin, but, unfortunately, no experiments showing its qualities or method of preparation were detailed by him. Dubois named the ferment (?) "spermase" and credited it with the power of modifying a hypothetical substance pre-existent in the ovum, which he called "ovulose."

Winkler, a little more than a year ago, reported the results of experiments similar to those of Pieri. Great care was taken to destroy the spermatozoa in the extracts and Pieri's work was much improved. The influence of the extracts was practically negative. Sometimes with the same extract the eggs of one individual "reacted," whereas the eggs of another did not. The proliferation never went beyond the 4-cell stage. It is well known that the unfertilized eggs of the sea-urchin are prone to divide into a few cells if they are allowed to remain undisturbed in normal sea-water for about a day—the usual length of Winkler's experiments. Winkler's results are hardly positive enough for the deduction that fecundative enzyme was obtained; they might, in fact, be used to show how unwarranted were Pieri's conclusions.

Shortly after Winkler's paper appeared, Cremer published a very brief note giving a general statement regarding some unfinished experiments by himself and Hofer. They worked with the testicles of trout and used the Hahn-Buchner pressure method for obtaining sperm extract. They found that none of the expressed fluids from the trout spermatozoa possessed any segmental activity on mature trout ova. No description of the experiments nor methods used in testing the extracts were given by these observers in their preliminary note.

Loeb recently made a series of experiments with various non-spermatic enzymes to determine proliferative power on the unfertilized eggs of the sea-urchin, but with negative results. He states that "the only enzyme that caused the egg

to segment at all was papain," but he could not be certain that this was not due to some accidental constituent of the sample of the enzyme used. "The other enzymes were absolutely without effect."

Two years ago Mathews, in some unpublished experiments cited by Loeb, tried the effect of rennin (rennet tablets) on unfertilized eggs of the sea-urchin. Segmentation into a comparatively small number of cells resulted. Mathews concluded, however, that the results noted had been produced not by the enzyme, but by the salts in the tablets increasing the concentration of the water.

Up to the time, then, that the author's work was begun it seemed possible that enzyme action might be a causative influence in normal segmentation of the ovum after introduction of spermatozoön, but no definite experimental evidence had been presented to support the theory.

Regarding the writer's work a multitude of details may be passed over and the essential facts regarding methods of procedure, etc., stated in the following brief account:

Because of the ease with which large quantities of the spermatozoa and ova of the common sea-urchin can be obtained, we used the sexual organs of this marine animal, which has furnished the material for many classical studies of cell development. The normal conditions under which fertilization and proliferation of the ova of the sea-urchin occur can be easily maintained in sea-water in the laboratory. Many of the usual methods of enzyme extraction were employed on the testicles. The eggs, always normal and mature, were kept in ordinary sea-water to which various quantities of sperm extract were added. Careful examination of the eggs was made at frequent intervals during twenty-four hours. Concentration of the sea-water was entirely prevented. The results of twenty-eight series of three to thirteen twenty-four-hour experiments were entirely negative—that is, no proliferation resulted and every extract was devoid of segmental power. Control experiments were made with each series, which showed that normal conditions prevailed and that the eggs would have segmented had the extract possessed proliferative power. It was also ascertained in control experiments that the extracts were devoid of toxic property.

The persistently negative results of these experiments, in which the existence of neither an enzyme nor a zymogen could be indicated, gradually led me to believe that possibly an enzyme is formed from material in the egg, or in the sperm, or in both, on contact of the two living elements. If such were really the case it would seem that extracts of the eggs which had been normally fertilized might, under appropriate conditions, possess the power of inducing segmentation of unfertilized ova.

A large number of eggs in sea-water were accordingly treated with a drop of spermatic fluid and allowed to develop in the normal manner to

various stages—in one experiment as far as the blastula stage—in the fluid was separated by decantation, the cell-groups thoroughly ground in a mortar with sand and extracted in several of the usual ways for the isolation of enzymes. None of these extracts had any power of causing fresh mature eggs to segment.

Entirely negative results rarely justify sweeping deductions. Since enzymes are indiffusible, or, at most, are only very slightly diffusible, it is possible that in experiments of the kind conducted by Loeb, Mathews, Winkler, Pieri, Cremer and myself, enzymes which may be contained in the extract does not and cannot enter the substance of the ovum, yet it may be that direct absorption of such enzyme in solution could take place through the micropyle. It may be that sperm enzyme, if such really exists, is as intimately connected with the structural elements of the cell, and as resistant to extraction processes, as Fischer has found the inverting ferment of the mould *Monilia candida* to be. But even if it is extractable, it might be assumed, with reason, that mere contact of the ovum with enzyme in solution would not cause segmentation and that, even if the peripheral portions of the cytoplasm should be directly affected by such immersion, the general effect would be entirely different if contact, or diffusion, occurred within the substance farther toward the nucleus. Possibly the morphological character of the spermatozoön, specially adapted as it is for great motility and penetration, should imply that segmentation by indiffusible enzyme contained in fluid surrounding the ovum is no more possible in artificial than it is a part of normal fecundation. If it is ever found that spermatic enzyme, or zymogens, are causative influences in natural fertilization, I venture to predict, in view of the results of our experiments, that their action will also be shown to depend on their direct delivery to points within the ovum.

If ions are to be reckoned among the agents of proliferation, why, it may be asked, did they not make active the sperm extracts used in these experiments? Unfortunately, we know nothing at present of the proportion of dissociated electrolytes in the spermatozoön and in such extracts. The composition of the ash does not furnish an accurate idea of the amount in the spermatozoön of salts pre-existent as salts and dissociable in extracts, although the comparatively large quantity of ash in spermatozoa, as found by Hammarsten and others, may suggest proportionately large quantity of dissociable electrolyte. We know little of the relative proportion of the various constituents of spermatozoa and ova, and we have no knowledge of the absolute or relative quantity of free ions entering or acting within the ovum. The ions which become active in the ovum may be originally a part of the molecules of the proteid compounds of the ovum, or of the sperm, or of both until the spermatozoön mingles with the protoplasm of the ovum and forms new and probably simpler

combinations. The writer's experiments were neither intended for, nor were their conditions suited to an investigation of this particular phase of the fertilization problem. The results cannot, therefore, be interpreted as having any bearing on them.

Summing up briefly, the chief experimental results of our work are:

1. Extracts of the spermatozoa of the sea-urchin, which have been made by the ordinary methods for the preparation of enzyme solutions, do not possess any power of causing proliferation of the ripe ovum.
2. No evidence could be furnished of the existence of a zymogen in spermatozoa.
3. Extracts of fertilized eggs, in the earlier stages of development, were likewise entirely devoid of segmental activity.
4. Enzyme seems to be excluded from the catalytic substances which Loeb and others have thought may influence the initial divisions of the ovum after the introduction of the spermatozoön, although it is possible that the conditions of these and previous experiments were unfavorable to the manifestation of activity on the part of fecundative ferment. It seems more probable, however, that Loeb's theory of the influence of spermatic ions in fertilization affords the true explanation of the phenomena in question.

Free use in the preparation of this paper has been made of facts and statements in the following publications:

- Wilson. The Cell in Development and Inheritance, 1898.
 Loeb. Papers in the American Journal of Physiology on Artificial Parthenogenesis: 1899, iii, p. 135; 1900, iii, p. 434, and iv, p. 178; 1901, iv, p. 424.
 Gies. Do Spermatozoa Contain Enzyme Having the Power of Causing Development of Mature Ova? American Journal of Physiology, 1901, vi, p. 53.

INFANTILE PLEURISY WITH EFFUSION.

BY W. T. ENGLISH, M.D.,
OF PITTSBURG, PA.

THERE are few diseases in which the diagnostician is more frequently at fault than in pleurisy with effusion in the infant, the most common error being to confound it with pneumonia. To examine the infantile thorax intelligently presupposes a special knowledge of its peculiar anatomy, and the incidental modifications in size, shape, location and mobility of parts and organs.

Experience, which is a stepping-stone to confidence, leads, under most conditions, to commendable misgiving in the presence of infantile pleurisy with effusion. Cocksurenness in discriminations involving pleuritic effusion and pneumonia belong only to those who have not yet been sublimated by the noble tutelage of recognized error. The dubious frame of mind prompts to careful scrutiny and permits no opportunity for re-examination to pass unimproved so long as the responsibility continues, and is therefore the better condition. After a few experiences with these maladies in the infant, physicians avoid comparisons with the clinical pictures of the diseases as presented by adult cases.

There are many difficulties in the way of a thorough physical examination of the baby thorax. The pose and covering favorable to best results are almost never realized. Needful quiescence is wanting, and, because of the small area of the infant thorax, the employment of the immediate methods of auscultation and percussion are precluded, or are rendered of little service. Persisting in the immediate methods of

of mobility is common to both; and again the respiratory experience of the infant chest is too limited to be trustworthy. Flattening of the intercostals or distention is duly observed in a few cases, but flattening is rarely appreciable, and fluid sufficient to cause bulging does not often accumulate in the infant thorax.

Displacement of the heart-beat is seldom demonstrable in the extreme young, but if it can be it merits attention. This sign is most valuable in left-sided effusions. Vocal fremitus is not often observed in the infant chest, and the respirations are accelerated in proportion to the neurosal conditions rather than with the pressure of the fluid. Neurosal symptoms are emphasized to the degree of epileptiform seizures and the ultimate manifestations in the presence of purulent effusions have been those of meningitis. The respiratory action should be estimated during slumber or in quiescent wakeful periods.

The auditory phenomenon which may also appeal to touch—friction—is not intensely developed, and, when present, is evanescent and must be found without delay, or it will evade detection.

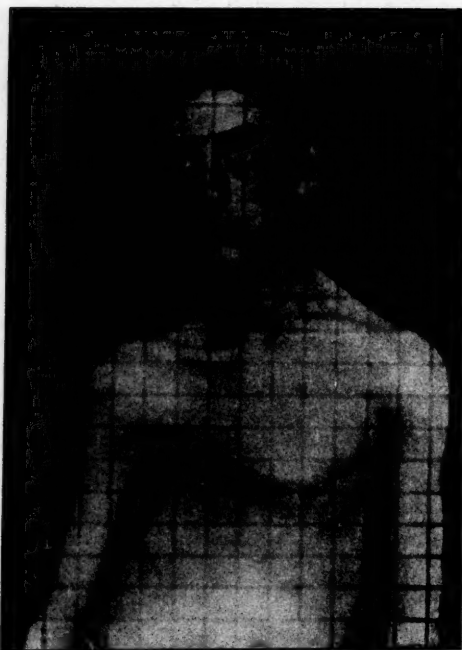


FIG. 1.—Showing the drooping of shoulder and anterior deformity fourteen years after expulsion of pus from pleura.

percussion, the laying on of heavy hands awakens a resistance through the external sense of feeling and brings about a tissue tension which changes the residing note. The application of the side of the head to the child's thorax brings in play the sound conducting power of the head bones, and the audible phenomena belonging to the entire side are thus made confusing.

If a case of infantile pleurisy with effusion be investigated systematically, the history of chilliness, if secured at all, will be found to have exhibited an intensity, ranging from slight chill to severe rigor. A casual glance at the fever chart of forty-eight hours will betray extensive excursions, and even suggest septic processes. The fever is irregular and remittent. The pulse, always without rhyme or reason until the period of puberty, sustains its reputation. Pain cannot be definitely located, but is intimated in a pantomimic way and given a very vague abiding-place. The visualizing analysis of inspection loses its value as a means of differentiating pleurisy with effusion from pneumonia, as loss

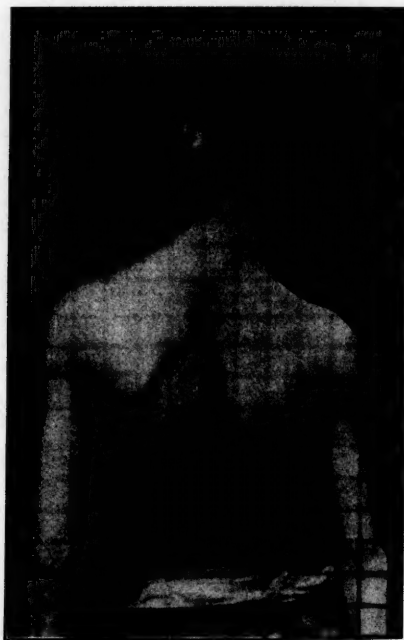


FIG. 2.—Showing posterior deformity fourteen years after expulsion of pus from pleura.

Influencing all auditory phenomena is the peculiar subtymppanic note residing in the child's thorax. Immediately over, as well as around the fluid within the pleura, percussion may secure a clear sound. Flatness belongs to massive effusions, and the tone elicited is a compromise between the tympanitic and the dull note. In using the light stroke, the tactile sense of resistance is sacrificed. The heavy stroke delivered upon the

thorax of the infant would awaken a response from the abdomen or stomach. An important fact often overlooked is the purely physical one, that fluid is a good conductor of sound, provided the sound be properly transmitted and through material which has good conducting qualities. The air vesicles are not good transmitters and so long as these intervene between the bronchial tubes and the fluid, the tubular sounds cannot travel. However, only a meager amount of fluid is required to collapse the infantile alveoli and produce atelectasis. The tubes continue some time thereafter to maintain their lumen and resist the pressure. These conditions impart to the percussion note dulness instead of flatness, modify tactile and vocal fremitus, contribute bronchophony, transmit bronchial râles and crepitations, thus sustaining the delusion of pneumonia. The clicking of coins upon the infantile pleuritic effusion is transmitted much better through the fluid than over the normal vesicular lung structure. If the circumscribed area be delineated, it will not be discovered necessarily in the lower portion of the chest, but may appear encysted in other localities. Adhesions may so

of determining the character of the fluid. In a few cases, aspiration is at once diagnostic and a measure which is conducive to cure. By the withdrawal of a very small amount of the simple effusion, absorption has been promoted. If the fluid is purulent, it should be removed without delay in order to prevent an empyema with last-

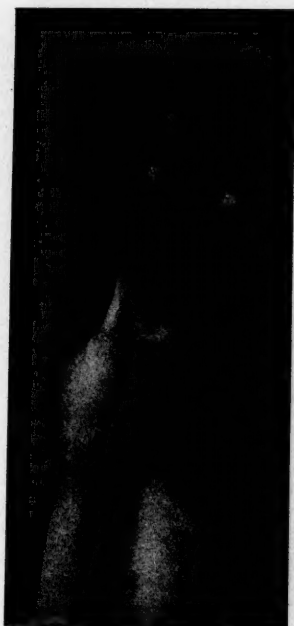


FIG. 3.—Showing contraction of diseased side fourteen years after expulsion of pus from pleura.

perfectly surround it that change in position has no effect upon it. It is only when the effusion is extremely large that the curve of Ellis and Damoiseau can be defined. Small areas of fluid will escape detection and often the diagnosis will be incomplete.

Having arrived at a suspicion of fluid, the diagnosis can only be determined by the aspirating needle. Moreover, it is the only sure method

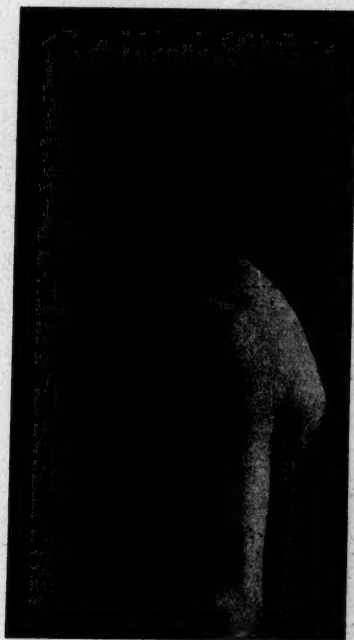


FIG. 4.—Showing extraordinary development of sound side fourteen years after expulsion of pus from pleura.

ing damages to the thorax, if not death to the patient.

In casting about for diagnostic means by which to attain the desirable and needful certitude, the radioscope has been faithfully appealed to, but in vain. One reliable aid is ever near at hand—the exploring needle. The ordinary hypodermic needle is never efficient. A large needle is required, but it need not be over one inch and a half in length. One precaution is to have it small enough to enter between the ribs without extending the wound unnecessarily. If the first puncture fails to secure fluid, a second should follow in forty-eight hours. If the general symptoms, or a previous puncture should intimate the probability of purulent fluid or pus, the needle adopted should be appropriately large.

Unfortunately, most cases are permitted to go on until pus is found, and the time required is very brief. The use of the aspirating needle is delayed until the opportunity is reduced to the necessity of accepting the only thing left in treatment—opening the thorax and draining.

The results lead ever more and more toward the worst sequelæ, for in very young subjects, where the walls are yielding, the change is, other things being equal, very much greater than in

the adult. The expulsion of the fluid, retained long enough to become purulent, has its influence upon the pulmonary elasticity, as well as upon the yielding and tender parietes. The lung never again expands completely, and occupies less space than formerly. The chest will be drawn inward, the diaphragm dragged upward, the shoulder of the affected side droops, and, in consequence of paralysis of muscles of the back, the spine yields to the traction of the sound side and we may have a distortion of the spinal column with the convexity toward the active side. The organs lying upon the margins of the unaffected side are thus made to encroach upon the side normally occupied by the lung. The diseased side no longer develops, while the sound side assumes extraordinary dimensions corresponding with its increased functions, and when such a series of misfortunes occur in the very young the deformity becomes more unsightly as the size increases, for the sound side grows with the growth and develops in harmony with the extra functional stress placed upon it.

The behavior of the fluid may betray its character. Absorption is the natural result if the conditions are favorable. However, serous exudate during infancy is not so readily absorbed as in adults. If the fluid lingers, its non-disappearance is probably due to its not being simple serum. Excessive sweating, anemia and hectic, observed in the presence of pus, do not exclude a consideration of the possibility of tubercle. The etiological factor should be sought for in every case, and the treatment made to conform therewith. Tuberculosis is demonstrated by the presence of bacilli in the fluid. Absence of bacteria in the pus constitutes the probability of tuberculosis. Streptococci and staphylococci are present in some cases of tuberculous empyema. Pneumococci ordinarily denote *meta pneumonia*.

Diseases of the heart, kidneys, inflammation of the liver, localized peritonitis, as appendicitis, and also lues, may act as causative agents in pleuritis. Pleurisy is a frequent complication of acute infectious diseases. We must bear in mind that empyema is common in children without more obvious reason than that the pleuritic attack is severe, or the resistance feeble. Empyema in babyhood is often that from the start.

Early evacuation of serous fluid should leave no other evidence than the scar upon the chest. In all cases where there are relapses, or a slow progress toward convalescence, an exploratory puncture should be made to determine if the cause is purulent fluid. The presence of pus constitutes an imperative demand for evacuation, as its presence precludes absorption. Two tubes should be used and safely secured in place covered with antiseptic gauze. These will soon drain the cavity and need not be retained long. Aspiration will not meet the needs and an incision will be the most conservative method, although resection may be required. Tonic treatment, including strychnine, iron, arsenic, etc., and, if possible a change of air and plenty of

sunshine, are to be commended. Where needed change is denied, the inhalation of oxygen may become a valuable substitute. The medicinal treatment includes few remedies in the presence of sepsis. Support and stimulation of the circulatory system with caffeine, digitalis, strophanthus, strychnine, etc., are available. Bromides should be used in preference to chloral for restless conditions and codeine and Dover's syrup for pains and cough.

Treatment should include some effort toward prevention of the deformities already pictured. The earlier the child is taught to use deep breathing, the better for the crippled lung. Forceful breathing in positions of advantage to the weakened side may be inculcated as early as the subject is capable of learning. Prior to the voluntary self-exercise, the attendant should lift the arm and shoulders off the thorax and aid in producing respiration. The shoulder should be raised from the thorax during the period of sleep. Postural respiration will be useful during childhood and adolescence. When the child is sufficiently grown, there will be observed an inclination to carry bundles, packages, books, etc., beneath the arm upon the crippled side, as it seems better adapted therefor than the one which is excessively developed. This disposition must be corrected, as it promotes deformity. A habit of resting the hand upon the hip or other means of support and lifting the weight of the shoulder and arm from the weakened side will prevent much of the inequality which otherwise must follow. The clothing should never be suspended from the shoulder of the injured side, and during some portion of each day deep inspiration and forced expiration should be practised with the body inclined toward the sound side while the hand upon the diminished side is grasped well above the head lifting the shoulder from the chest.

Illustrative of the results of pleurisy with effusion in infancy the following case is instructive.

Infant, J. W., at four months was attacked with what was supposed to be an attack of pneumonia. The physician then in attendance treated during a period of eight weeks. The record is wanting until the patient was treated by Dr. J. A. Duncan of Pittsburg, Pa. At this time an empyema was evident and it was treated by immediate evacuation and a drainage-tube. The time included from first illness up to this treatment was a little less than four months. The drainage was completed and the wound closed after three months. The results, however, upon the elasticity of the tissues of the lungs and thoracic development remained and the photographs presented show fairly well the deformity resulting. The subject is now sixteen years of age and has been under my observation during a period of two years. The treatment as above outlined has been adopted and the deformity continues without increase, but no hope can be entertained of any restoration to a more normal size or function of the parts.

TENDON AND MUSCLE TRANSFERENCE AND ARTHRODESIS IN INFANTILE PARALYSIS.

BY E. H. BRADFORD, M.D.,
OF BOSTON.

ALTHOUGH it has been said that, as the science of healing advances, the two branches of medicine and surgery would become so interwoven as to be practically inseparable, yet it is true that the range of pure surgery, or the handiwork of the art of healing, is increasing day by day. An illustration of this truth can be found in the surgical treatment of the results of anterior poliomyelitis. The two following cases may be cited as illustrative:

Case I.—A boy of six was brought for treatment suffering from the effects of infantile paralysis and showing nearly complete paralysis of the left leg and thigh. There were no contractions; ability to move the toes and slight power of flexing the knee remained. The glutei and a portion of the adductors retained some strength, but the quadratus femoris and the controlling muscles of the foot were paralyzed. The case was one demanding mechanical treatment and an apparatus was furnished with which the boy was able to walk freely without the use of a cane. Without the apparatus locomotion was impossible except with the use of crutches. This condition continued and the boy grew to manhood, gaining complete freedom in locomotion with the use of the apparatus, but being unable to do anything without it.

In this case the treatment consisted simply in the selection and application of a properly-devised apparatus. With this the condition of infirmity is so far ameliorated that the patient has become a self-supporting wage-earner.

In the second case more was accomplished by means of direct surgical intervention.

Case II.—A boy of eight was taken with extensive infantile paralysis, involving the muscles of the trunk and several muscles in both lower extremities. Recovery took place to a limited extent, but the patient was left with a severe lateral curvature and inability to walk without the use of crutches or a cane. There was a valgus position of the left foot and a varus of the right, with a tendency to equinus. There was inability to extend the right leg at the knee, which dropped when weight was thrown upon it. After a period of the usual treatment of electricity and massage, the sartorius muscle was transferred to the tendon of the rectus femoris. In six months the ability to extend the leg had recovered so that no apparatus was needed when weight was thrown upon that limb. The transference of one of the tibial tendons to the perineal attachment prevented the tendency to varus and the boy at the age of fifteen is able to walk freely without mechanical appliances to the right limb, but needing in the left foot a slight ankle support.

Case III.—This case will illustrate the advantage of more radical surgical intervention. A pauper was brought to one of the hospitals with a

complete paralysis of the right lower extremity. No continued treatment by apparatus was feasible, and it was decided to stiffen the knee-joint. This was done by cutting down upon the knee and removing the cartilaginous surfaces of the femur and tibia. Firm union took place and a few years later the girl was able to obtain her livelihood as a waitress. She needed no apparatus.

The three methods illustrated by these cases, *viz.*, mechanical treatment, muscle and tendon transference, and the stiffening of the joint, are measures which demand a combination of considerable skill and judgment in the suitable application of each to individual cases. A consideration of the disease is not here presented. As is well known, medication is of little value at the later stage of the affection when the patient is brought to the surgeon in a crippled condition, the problem being the restoration to the patient of as much function of the limb as is possible. This involves the correction of the deformity in some instances which will not be considered here; nor will a description of the various appliances needed for the correction and prevention of deformity be entered upon in this place. This paper is intended to call attention to the value of the application of both tendon and muscle transference and arthrodesis in many of the cases of poliomyelitis.

Although the palsies following anterior poliomyelitis vary greatly, in many instances certain muscles retain some power and this power is capable of development from use and of degeneration in case it is not used.

In the lower extremity, in the severest cases, all the muscles are affected, including the adductor group and the glutei. Such cases appear to be beyond the aid of operative surgery. Arthrodesis, stiffening of the hip, knee- and ankle-joint, suggests itself, but the measure seems to be of questionable value, owing to the clumsy condition in which the limb is left. The application of an apparatus with the aid of a cane appears in cases of this sort to be the only resource.

Where, as is more frequently the case, some muscles remain, an advantage can be gained by the employment of the non-paralyzed muscles. The muscles frequently left retaining some power are the sartorius, the adductor group and the hamstrings. The transference of the sartorius to the rectus is a measure which can be done without difficulty. The obstacle met is usually the abnormal position of the sartorius, which is often nearer the hamstring at its lower attachment. A curved incision at the lower end of the femoral will bring to light the attachment of this muscle, which should be entirely freed, brought up and transplanted into the firm sheath of the extensor cruris. Where the sartorius is found to be weak the outer hamstring or adductor can be detached and brought forward and inserted on the outer side into the fascia and tendon of the extensor cruris. Where the adductor group is completely paralyzed the problem presented is certainly a

difficult one. Whether the transference of the glutei can in any way be accomplished to supplement weakened adductors is uncertain, but this is perhaps within the limits of possibility as is also the shortening of the paralyzed adductors that they may act as a cord to check extreme abduction. In paralytic disabilities of the knee where all the muscles are paralyzed, making muscle transference impossible, arthrodesis is a method only to be resorted to in cases where no mechanical treatment is possible. That a useful limb can be furnished in this way has been abundantly shown, but the resulting stiff knee can be avoided by a properly-constructed apparatus, usually preferable to the annoyance of a stiff knee.

In the paralysis of the muscles controlling the action of the feet, the combined employment of arthrodesis and tendon transference is of great value. These paralyses may be grouped as follows: (1) Palsies of all the muscles controlling the movements of the feet; (2) palsies of the anterior group; (3) palsies of the anterior group, except the extensor proprius pollicis; (4) palsies of the perineal group alone.

Where the muscles are all paralyzed in the front of the foot, the tendo Achillis can be split and a portion transferred and attached to the paralyzed peroneus tertius or to the tibialis anticus, or both. The procedure is not difficult and is performed by making an oblique incision on the outer side of the leg, securing the tendon of the tibialis anticus and of the peroneus tertius above the anterior annular ligament, following them well up to the muscular origin in the leg. A portion of the tendo Achillis is cut off and passed obliquely forward and stitched to both of the cut tendons.

Where the gastrocnemius is paralyzed, several procedures have been recommended. The insertion of the tibialis posticus and one of the peronei; the splicing of the tendo Achillis, all are used. The latter, the shortening of the tendo Achillis, has not proved of as great value as the insertion of the tibialis posticus or the peroneus brevis.

The success in these undertakings depends, not only upon the amount of care in the performance, but also upon the uncertain quality of the strength of the muscles, which is something which is not to be readily determined before an operation.

In considering the treatment of these paralyses it is necessary to bear in mind the peculiar anatomical condition of the joints of the foot. It will be remembered that in addition to the ankle-joint proper with an up and down movement, *i. e.*, the tibio-astragaloid joint, there is the mid-tarsal or Chopart joint, or the articulation between the astragalus and the scaphoid, the os calcis and the cuboid, giving a side motion with a certain amount of obliquity. In addition to this a certain amount of play will be found in the metatarso articulation, particularly in the first metatarsal.

Tendon transference is of value for the purpose of preventing the dropping of the front of the foot, or where the anterior group of muscles have been weakened. Where either the extensor

proprius pollicis, anterior tibial, or the peroneus tertius are unparalyzed, they can be transferred to either side and in that way give power for the raising of the front of the foot. Whether this can be done successfully will depend upon the strength of the muscle and the length of the foot. If any of the muscles of the toes remain unparalyzed it is possible to utilize the extensor communis digitorum by uniting a paralyzed anterior tibial or peroneal muscle or muscular fascia to the extensor communis digitorum. In this way in many cases the dropping of the front of the foot can be prevented.

In many of the older cases of this affection, distortion develops from the adapted shortening of the soft tissue. Valgus and varus deformities are established, induced at first by the inequality of the strength of the muscles and aggravated by the abnormal strain brought upon the various portions of the bones. Under these conditions simple tendon transference is not sufficient to prevent a relapse after a correction, as the transferred tendons are not sufficiently strong to withstand the unusual strain brought upon the foot. Under these circumstances arthrodesis of the mid-tarsal articulation is of a special service. No difficulty is met with in this operation. An external incision is made and the articulation between the os calcis and the cuboid laid bare, the peroneal tendons being pulled aside. The cartilaginous surfaces of the os calcis and the cuboid are removed with a chisel, and if any abnormality in the shape of the bone has taken place this can be removed, as the incision can be enlarged or another incision can be made on the inner side, and the scaphoid and astragalus ankylosed in the same way. This, with proper correction, does not interfere with the up-and-down motion of the foot, but does interfere with the twist which it is desirable to prevent. In cases without muscular strength of any of the muscles of the leg, front or back, an ankylosis between the tibia and the astragalus can be performed, but the advantage of this over a proper appliance is not manifest and the operation hardly recommends itself for this reason. A partial operation to strengthen the ligaments on either side of the ankle by shortening relaxed ligaments is of advantage.

The percentage of complete success from these different procedures in a large number of cases is yet to be accurately determined by further clinical investigation. Where these measures have been carried out, benefit is evident in suitable cases and it is desirable to call attention to the advantage of a combination of arthrodesis and tendon transference, *i. e.*, to the employment of one or both with or without suitable apparatus in proper cases, and to emphasize the fact that the surgeon has, in the management of this disability difficult of treatment, an opportunity for the employment of surgical judgment, anatomical and physiological knowledge, and the exercise of trained skill with the expectation that in a large percentage of cases benefit will follow his properly-directed efforts.

THE MANAGEMENT OF ACUTE GONORRHEA.

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AMONG all diseases known to medical men there are few, if any, for which so many remedies have been advocated and used as in gonorrhea. It would be more than useless for me to describe them here, for in this brief article space is only given for the latest and best methods of treating this disease as derived from the experience of well-known men on this subject and my own experience as well.

When a patient comes to a physician's office with a discharge from his urethra, the physician should not express an opinion that it is gonorrhea unless microscopical examination is made and gonococci are found, for if it is a non-infectious urethritis the duration, course and prognosis will vary widely from that of a true gonorrhea. The treatment of a non-infectious urethritis will also differ decidedly from that of infectious urethritis. As a rule, the only treatment necessary in non-infectious urethritis is removal of the cause; rest and an alkali to ensure a bland condition of urine. After the discharge is examined and gonococci are found, treatment should be instituted in the following way:

Abortive Treatment.—Many abortive methods are advertised in public newspapers by quacks, some of whom specify the duration of the disease as being from five to eight days, but such rapid cures place the life of the innocent patient in jeopardy. I regret the condition of a patient who falls into the hands of these quacks. The physician must remember that checking a discharge does not necessarily mean curing gonorrhea. For a number of years experiments were made with various drugs such as silver nitrate, bichloride of mercury, etc., with the idea of immediately killing the gonococci, but it has been all in vain. They have only succeeded in producing lesions of various kinds in the urethra, setting up all kinds of complications, thus prolonging the duration of the disease. Those cases which were reported as aborted were either non-infectious or pronounced cured when the discharge had ceased. It is now known to every intelligent practitioner that the discharge may disappear and return after an elapse of a few weeks, for the gonococci penetrate the surface of the mucous membrane of the urethra and remain lodged in the deeper tissues, hence attempts to kill the gonococci immediately would mean to completely destroy the mucous membrane. This is manifestly an absurd procedure. Let us, therefore, be convinced that at present no remedy is known which will abort a true gonorrhea and let us hope that in the future we will have a remedy which will not only abort but prevent the occurrence of this disease.

Local Treatment.—Of all methods known I find the irrigation method the best. In 1894 not

a dozen men in the world were using the irrigation treatment in gonorrhea. Many had attempted and discarded it; owing to defective apparatus and ignorance of technic, unfortunate results were obtained. Among the earliest successful men were Felicke of Budapest, Jenet of Paris, E. R. W. Frank of Berlin and Swinburne of New York. Afterward this method of treatment became known as the "Valentine method" and still preserves its name. To Valentine belongs the credit of devising a simple apparatus, developing the technic, rendering rules precise and of writing a number of articles pointing out the advantages and disadvantages of this method. The irrigator is too familiar to the profession to be described.

Method of Irrigation.—The method of irrigation is worthy of description, for, although thousands of physicians are using this method, many are using it in different ways. After urinary and microscopical examinations are made the patient is instructed to drop his trousers to his knees, to roll up the shirt and undershirt, thus exposing the abdomen. A rubber apron having a hole in the middle for the penis, thus avoiding soiling of clothes, is then put on and the patient stands close to a stand having a basin in the center which I use for this especial purpose. The patient's eyes should be directed to the percolator of the irrigator to thus engage his attention. This is especially good for neurotic patients.

The stand is placed to the left of the irrigator. The percolator is raised as high as three feet. Have a standard solution of potassium permanganate, 1-4000 in 1 quart of water, in the percolator. This may be increased up to 1-1000 as the disease advances. The temperature should be at least 100° F. and may be increased up to 112-120° F. as the patient becomes accustomed to it. The physician stands near the irrigator and to the right of patient. Several clean glasses should be placed on a stand for testing urine; one glass should contain a solution of oxalic acid to remove stains caused by permanganate; one glass of strong lysol solution or strong bichloride to keep the nozzles in, so as to prevent re-infection. Before each irrigation the nozzle should be washed with boiling water. After use, place it in lysol or bichloride. At night wash same with hot soda solution. Unless the above precautions were taken the nozzles should not be used, for it would be criminal negligence to produce re-infection.

Take the penis in the left hand between index, middle and thumb fingers; take the stopcock of the irrigator in the right hand; hold the nozzle under boiling water to wash away all micro-organisms and dirt. Allow some of the solution to flow on glans, foreskin and meatus. Now direct the stream into the urethra with gradual increase. Should it be desired to wash out the posterior urethra or the bladder, the nozzle must be brought in close proximity to the meatus, at the same time telling the patient to attempt to urinate. This last act, as will be readily under-

stood, loosens the cut-off muscle and the solution gains an entrance. This is continued until an entire quart of the solution is used. After irrigation I inject into the urethra three drams of a 2-per-cent. solution of protargol through an ordinary urethral syringe. The patient is instructed to keep the meatus closed by pinching it with his fingers and he thus retains the solution for from 5 to 10 minutes, after which he allows it to flow out. Some patients will faint during this act. I would, therefore, suggest that they be placed in the recumbent posture, especially the first time. The number of irrigations will vary with each individual case. I usually make it a rule to give irrigations of permanganate twice daily, followed by protargol, until the discharge has lessened and it has changed from a purulent to a serous character. This usually takes from two to three weeks. After this I give irrigations once daily, followed by injections of zinc or lead or both; sometimes I add bismuth to the above two drugs. I find that zinc and lead have a great tendency to check the slight discharge which is seen in the declining stages of the disease. After the urine is clear and the discharge and gonococci have disappeared, I still give irritations once a week for another month.

I have found that since I began the irrigation method chordee has been absent, no complications have arisen and the duration has been shortened. It is impossible with a 3-dram syringe to do away with all the mucus, pus and gonococci which become impacted within the urethra during the intervals of treatment. On the other hand, with the irrigation method we are enabled to give the urethra a thorough mechanical cleansing, flushing it out, at the same time killing the gonococci because of the germicidal effect of the potassium permanganate. I believe that any physician who has any experience at all with the irrigation treatment will agree with me that this method is one of the greatest blessings that human thought and observation have furnished to mankind.

Constitutional Treatment.—Alkalies and diuretics are best employed to keep the urine unirritating. Bicarbonate of soda in one-dram doses twice daily may be used. Potassium acetate in 5 to 20-grain doses, t.i.d., is good. A good pill is methylene blue, grain one; boracic acid, grains 5; one t.i.d. A rather serious objection to this is the discoloration of urine and feces. This last pill serves a two-fold purpose. It is a diuretic and urinary antiseptic. It should be given only during the first two weeks. After this time I give oleum santali, balsam copaibae or the various preparations of cubeb, in capsule form.

There is little room for doubt that hygienic environment is of greatest importance. The patient should rest in bed most of his time in order to lessen congestion of the parts. All exercises, such as dancing, bicycling, horseback and running, should be avoided. Avoid sexual excitement entirely. Daily movement of the bowels is

important. No beverages of any kinds such as beer, whiskey, ginger ale, etc., should be used, for they are genito-urinary irritants. The patient should avoid fats, meats, acids or sweets, or any food difficult of digestion. Smoking is to be avoided. Hot milk is very good. It is the duty of the physician to impress upon the patient that, unless he will carry out all his orders, complications will invariably occur. It is also the duty of the physician to get out all superstitions and fictions which some of them have learned from their friends, such as: (1) "Drinking away a clap," i.e., drinking all kinds of beverages, thus causing disease to disappear. (2) "Giving away a clap," i.e., having sexual intercourse during disease, thus leaving it with the woman. (3) "Purifying the system," i.e., allowing the discharge to run for at least one or two weeks, thus purifying system.

Unfortunately, these patients come under physicians' observations after they have undergone all above mentioned experiments.

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MEDICAL PROGRESS.

Orthostatic Albuminuria and Scarlatinal Nephritis.—Functional albuminuria is now divided by most writers into two main groups, the cyclic, occurring at a certain hour of the day, independently of fatigue and of digestion, and the orthostatic, determined by the upright posture. Orthostatic albuminuria, according to C. AUBERTIN (*La Presse Méd.*, Oct. 9, 1901), is really not purely functional, but is commonly a relic of infectious nephritis and occurs where there remains a certain degree of renal insufficiency. Aubertin describes a case of scarlatinal nephritis in which, after the initial period of continuous and abundant albuminuria, there followed six or seven weeks of albuminuria of posture, not influenced in any way by fatigue, alimentation or electricity. Albuminuria was still present ten months after the scarlatinal attack, but was gradually influenced less and less by mere posture, while diet, muscular exercise, etc., became more and more important as affecting the renal function. Among the previously published cases of orthostatic albuminuria the majority give a previous history of some infectious disease, probably involving the kidney and rendering it susceptible to disturbances of function.

Gangrenous Erysipelas and Streptococcus Serumtherapy.—Antistreptococcus serum from the laboratory at Bern was used with apparent success in a case of gangrenous erysipelas by A. Joss (*Corresp.-Blatt f. Schweizer Ärzte*, Oct. 1, 1901). The patient was a woman who, during the last few days of pregnancy, suffered from a severe nasal catarrh; the day after her child was born she experienced pain and a sense of tension in the nasal region, and a day later severe erysipelas covered the right side of the face. Sodium salicylate and antipyrin were

given internally and the skin over the affected area was painted with carbol-turpentine-glycerin. Two days later gangrene appeared in the skin covering the eyelid, the swelling advanced into the scalp and the labia majora became red and swollen. Extension of the gangrene and the appearance of bed-sores with increased infiltration about the labia were the next developments; the patient began to look "typhoid"; her pulse was 130, respirations 40, temperature 38.5° C. Six serum injections were made, the first 20 c.c., the remainder 10 c.c. each. The pulse became less rapid after the second injection and continued to improve while the treatment was continued. Necrotic tissue came away from the eyelid and labia majora. The patient later showed physical signs of a disseminated bronchopneumonia (probably streptococcus pneumonia) with bloody sputum. The temperature fell rapidly as soon as the gangrenous masses were cast off. In view of the severity of the infection the writer believes that but for the serumtherapy the case would have terminated fatally.

Causes and Treatment of Vomiting in Pregnancy.—Persistent vomiting during pregnancy is not a morbid entity, but a mere exaggeration of the milder form which occurs so frequently. Three theories of causation are given, namely: (1) Nervous disorder; (2) reflex originating in the genital organs; (3) intoxication. While the nervous theories cannot be wholly set aside, M. HUGÉ (*La Presse Méd.*, Oct. 9, 1901) considers most cases of inconvertible vomiting to be due to intoxication. The cause is to be sought in disorders of the liver, kidneys, stomach or intestines, superinduced by the excessive work imposed on these organs by pregnancy. Treatment may address itself to the nervous state of the patient, to the gastric condition, and to the systemic intoxication. Reflex nausea due to uterine lesions or displacements calls for treatment of these conditions. By careful dieting and appropriate medication gastric digestion must be promoted and cardiac erethism controlled. The urine always demands close study; albuminuria or diminished urea suggests a milk regimen; antiseptics of the alimentary tract is an important indication. Rectal alimentation may obviate in part errors of digestion and absorption incident to feeding by mouth. Evacuation of the uterus is a last resort.

Glycosuria and Life Insurance.—The rigorous and unqualified rejection by life insurance companies of all applicants suffering from glycosuria is held by A. SIREDEY (*La Méd. Moderne*, Oct. 2, 1901) to be an unnecessary and unjustifiable practice. He believes that the interest of the companies does not demand the rejection of diabetics over thirty-five years of age who are well nourished and whose organs are apparently sound, although prudence might dictate in these cases a slight advance over ordinary premiums. Where glycosuria follows overwork, emotion or traumatism a re-examination after six months will often reveal a radical change for the better; hence in this class of cases postponement and not

rejection is indicated. Siredey, however, endorses the existing rule of rejection so far as it applies to individuals under thirty-five years of age and to cases of emaciating diabetes at all ages.

Extraserous Transposition of the Testicle.—A method of extraserous transposition of the testicle was proposed by L. LONGUET in October, 1900. With certain modifications in technic this method is again recommended by the same writer for the treatment of hydrocele of the tunica, testicular ectopia and cysts of the cord. Longuet gives the results of 56 operations (*Le Progrès Méd.*, Sept. 21, 1901), 50 of which were done either for hydrocele or hematocele. He utterly renounces "combined eversion and excision" of the tunica vaginalis in enormous hydrocele; experience teaches that simple transposition of the testicle suffices, however large the vaginal cyst. The removal of the fluid-contents of these cysts is followed by a prompt disappearance of the enormous pocket, the walls shrinking in virtue of their elasticity. Among Longuet's first series of cases of hydrocele and hematocele, published in 1900, post-operative history has been obtained in eight instances, and in none of these has there been any return of the original condition. Nothing was gained, however, in three cases of testicular ectopia with shortness of the cord; better results may be anticipated where the cord is of sufficient length. Longuet's method has been applied to the treatment of varicocele too recently for the obtainment of evidence as to its remote effects; but in three reported cases the operation was followed within five days by cessation of pain and disappearance of the varicose tumor. The ordinary procedure is high transposition of the testicle in varicocele, low transposition in ectopia, internal transposition in hydrocele. Transseptal displacement is an exceptional resort.

Diphtheria.—Notwithstanding all that has been accomplished with respect to this disease, both from therapeutic and diagnostic standpoints as the result of scientific research, there still remains much that is obscure in regard to the exact bacteriological conditions which underlie its various manifestations. The precise relations between true and pseudodiphtheritic bacilli have not as yet been fully ascertained. The study by LOUIS CORBETT (*Jour. Hygiene*, Oct. 1, 1901) of the epidemic which occurred in Cambridge, England, in the spring of 1901, is of interest from several standpoints. As the result of his work he holds that there is no reason for believing that the pseudodiphtheritic bacillus is other than perfectly innocuous to man. It is an error to believe that true diphtheria bacilli are distributed among the healthy members of a community free from diphtheria. He found genuine diphtheria bacilli in the healthy throats only of those who had come into more or less direct contact with actual cases of diphtheria. Partially attenuated bacilli were never found and in no case investigated was a virulent bacillus replaced by a non-virulent before its disappearance. Whether persons without

apparent illness who are found to have true diphtheria bacilli in their throats should be reported as cases of diphtheria is a mooted question. The difficulties which stand in the way of such a procedure are manifold. Nevertheless the institution of such a measure would be of undoubted benefit in controlling the spread of the disease.

Etiology of Vaccinia.—Although a large amount of work has been done upon this subject it is not as yet absolutely decided whether the causative agent is of a protozoic or bacterial nature. Dr. VON WASIELEWSKI (*Ztschrift f. Hygiene u. Inf.*, Oct. 4, 1901) has contributed extensive investigations along this line. His work comprises both microscopical study and experimental research. He arrives at the following conclusions: (1) The vaccine bodies are peculiar, characteristic forms which are present in variola and vaccinia but absent in other conditions and in health; the bacteria described as producing vaccinia are saprophytes and devoid of etiological significance, as the action of bacteria-free lymph proves. (2) These bodies appear in the cuticle epithelial cells of rabbits without fail shortly after the virus is introduced. (3) They cannot be made to so appear by the employment of any substance save vaccine virus. (4) These bodies are neither leucocytes nor products therefrom. (5) That they are derived from the nuclei of the epithelial cells is contradicted by their appearance in absolutely normal cells, their presence in mitotic dividing cells and their usual position in the periphery of the cell removed from the nucleus. (6) That they arise from the cell protoplasm as the result of the action of a specific poison is improbable. (7) The size, form and configuration of these bodies, as well as the method of their multiplication and the appearance of degeneration forms, tend toward the opinion that they are "parasite cells" (protozoa). (8) The changes brought about by their presence in the epithelial cells supports this view. (9) Since no regularly appearing bacteria are uniformly present in the inoculated area, these bodies must be regarded as the etiological factors in the causation of vaccinia.

Antipyretics in Acute Infectious Conditions.—Ideas concerning the mode of production and significance of fever in acute infectious conditions have during the last few years undergone considerable alteration from those formerly held. Discoveries which have shown the presence in these conditions in the blood of various substances giving rise to the bactericidal and agglutinating sera have led to the opinion that the fever at least in part is the result of the reaction occurring in certain cells and organs where these substances are produced. As the production of these substances largely determines the clinical course of any given infection, it becomes of interest to ascertain whether the employment of antipyretic agents has any influence upon the production of such bactericidal or agglutinating substances. ALBERT SCHÜLTZE (*Ztschrift f. Hygiene u. Inf.*,

Oct. 4, 1901) attempts to solve this question by the means of experimental research. His investigations were limited to the study of antipyrin. He inoculated rabbits intravenously with typhoid cultures. These in a few hours developed a rise of temperature. Into some he then introduced hypodermically small quantities of antipyrin, while others were maintained as controls. Those receiving the antipyrin showed a marked and prompt fall of temperature. No differences in the bactericidal or agglutinating power of the blood was observed between the animals so treated and the controls which received no antipyretic medication. This shows that antipyrin exerts no unfavorable influence over the formation of specific immunizing substances.

Pathology of Aneurism.—Some diversity of opinion is prevalent with respect to the pathological changes which underlie the formation of aneurism. The earlier conception was that simple inflammatory processes of the tunica intima and media were the chief causative factors. Latterly traumatism has been regarded as plying the most important part in the origin of this condition. A. FABRIS (*Virchow's Archiv*, B. 165, H. 3) has investigated this subject by the means of experimental research. He observed the effect of traumatism upon the arteries and the intensity and duration of the changes thus produced. These he compared with the alterations occasioned by other lesions which give rise to aneurism. The result of his work shows that traumatism produces in the arterial wall rents of various size followed by degeneration of the elastic fibers. There occurs only a slight increase of the lumen of the vessel, which soon disappears in consequence of the regeneration process. In addition to the formation of new elastic fibers there occurs also an hypertrophy of the muscular coat of the vessel. The tissue thus regenerated, being of less functional value than the original structure of the vessel, undergoes dilatation which persists and gives rise to the formation of aneurism.

Treatment of Carcinoma.—A new method of combating this group of malignant tumors is suggested by F. LOEFFLER (*Deut. med. Woch.*, Oct. 17, 1901). He proposes the inoculation of persons afflicted with carcinoma, especially the inoperable cases, with the plasmodium of tertian malarial fever, and bases his proposition on the following facts. Various observers have noted that carcinomatous growths have been inhibited and that improvement has taken place when the patient in question became subjects of a malarial invasion, and, moreover, that in the tropics, where malarial diseases abound, carcinoma is practically unknown. He also believes that carcinoma is on the increase in Central Europe, since malaria has been successfully combated and the number of its sufferers reduced. Further and more detailed observations are necessary in what may prove a great field for future discovery and investigation.

Infectious Parotitis.—A case in a young

adult with severe symptoms resembling typhoid, is reported by E. SCHWARTZKOPF (*Deut. med. Woch.*, Oct. 17, 1901). The invasion was marked by chill and rise of temperature, with headache, vertigo, abdominal pains. Alternate states of stupor and delirium followed. Region of liver and spleen very tender to the touch, abdominal wall tense. Testicles not involved. The differential diagnosis from typhoid depended on the enlargement of the parotids, the presence of an epidemic of mumps in that locality, the absence of the characteristic eruption, and the rapid recovery.

Dysenteric Bacilli.—Since the bacteriological investigations by Shiga of epidemic Japanese dysentery much work has been done with respect to this subject by various observers in many different countries with the result that several organisms have been isolated and proclaimed as the causative agents in different dysenteric epidemics. SIMON FLEXNER (*C'itblt. f. Bak.*, Oct. 12, 1901) has undertaken the comparative study of several of these so-called dysenteric bacilli. The organisms thus compared were Shiga's, Kruse's, Flexner's, and in addition several received from Manila and Porto Rico. A comparison of their morphology shows only minor variations which are confined to differences of length and breadth. All possess motility and flagella, although this observer was unable to demonstrate the presence of the latter. The agglutination reaction is of the greatest importance. The blood used for this purpose was obtained from Manila and Porto Rico, also from several cases of dysentery in the Philadelphia Hospital and in Morven, N. C. The serum of partially-immunized goats was also employed. All of the bacilli examined were agglutinated by every one of the bloods mentioned. The reactions, however, were not always of the same intensity, in some cases to produce a given reaction weaker dilutions being required than in others. The inter-agglutinability of these organisms leaves little doubt as to their common identity and indicates that the dysenteries occurring in the Far East, Germany, West Indies and this country, are caused by the same organism, and justifies the view that the determination of a specific organism of dysentery is near at hand.

Physiological Action of Suprarenal Extract.

—More exact physiological research on this substance or substances is given by J. N. LANGLEY (*Jour. of Phys.*, Oct. 16, 1901). He observed the effect produced when introduced subcutaneously or intravenously into cats and rabbits. Certain varieties of commercial suprarenal tablets were used as was also the extract prepared directly from the gland. No wide variation was observed in the action of products obtained from different sources. In obtaining the extract from the gland this was removed from the body directly after death and dried in a desiccator. When about to be used the dried substance was first ground with sand and then with a .75-per-cent. salt solution, a drop of acetic acid being added. The mix-

ture was then boiled and filtered. The proportion of dried gland to salt solution was 1 to 100. He finds that the inoculation of this substance gives rise to an increased secretion of all the salivary glands as well as from the buccal, esophageal and tracheal mucous membranes. It causes a primary pallor of these tissues followed by a flushing. There occurs an increased, followed by a decreased flow of bile. It does not produce a secretion from the pancreas, but may increase a secretion already existing. No secretion from the sweat-glands is produced. It causes an inhibition of the urinary bladder, intestine, gall-bladder, cardiac sphincter of the stomach and the stomach itself. It produces dilatation of the pupil, protrusion of the eyeball and retraction of the nictitating membranes. It causes contraction and pallor of the uterus, vas deferens and seminal vesicles. Its action upon the arteries is unequal, producing a more marked contraction of the medium-sized arteries of the abdominal viscera than of the smaller, but easily visible ones. It always causes great contraction of the very small vessels, either arterioles or capillaries. There occurs a marked rise in blood-pressure. It causes a paralysis of the vagus which is, however, of brief duration.

Hemolytic Action of Typhoid Bacillus.

—The ability of various micro-organisms to give rise to metabolic products which cause the disintegration of the red blood-cells has recently been extensively investigated. It has been found that, as a rule, pathogenic bacteria possess this property which is exercised, however, within wide limits, varying markedly with the various species of microbes and the external conditions under which they find themselves placed. E. LEVY and PROSPER LEVY (*C'itblt. f. Bak.*, Sept. 30, 1901) show that the typhoid bacillus possesses marked hemolytic power. In their work they employed filtrates of 14-day cultures of this organism in weakly alkaline bouillon. A very small amount of such filtrate when added to dog's blood caused rapid and complete disintegration of the red cells. Dogs which were inoculated subcutaneously with sterilized typhoid cultures showed, after six days, the presence of anti-hemolytic substances in their blood-serum. When a small amount of such serum was added to normal dog's blood the disintegration of the red blood-cells by the products of the typhoid bacillus was entirely prevented. These anti-hemolytic substances may be submitted to a temperature of 56° C. without undergoing alteration.

Cholecystitis and the Bacillus Typhosus.

—Although in many cases of cholecystitis, accompanying typhoid fever, typhoid bacilli have been isolated from the gall-bladder, most of the cases so reported are open to the objection that the organisms so obtained have not been fully identified, the agglutination test not having been employed. ALBERT BRION (*C'itblt. f. Bak.*, Sept. 30, 1901) reports a case of cholecystitis occurring in typhoid fever. The contents of the gall-

bladder were examined twenty-seven hours after death and showed a pure culture of the bacillus typhosus. These organisms when inoculated into a rabbit gave rise to a serum which agglutinated known typhoid bacilli in a 1-300 dilution. There remains, therefore, no doubt of the identity of the organisms isolated.

Metachromatic Granules in Spore-forming Bacteria.—Numerous observers have demonstrated the presence of various varieties of granule formation in the protoplasmic bodies of certain spore-forming bacilli. Recently E. KROMPECHER (*C'ltblt. f. Bak.*, Oct. 8, 1901) has shown the presence of metachromatic granules in the bodies of several such species (b. anthracis, b. concentricum and b. anthracoides) when they have been submitted to artificial cultivation upon agar, potato or gelatin. This form of granulation has not been hitherto described and its mode of development is unknown. When stained with carbol-methylen blue, they take a bright red color even when the organism has been exposed to an extremely elevated temperature. They usually appear in the center of the bacillus. It is thought that they are concerned in spore-formation, since they only occur in spore-bearing organisms and are resistant to heat. They are easily differentiated from the Babes-Ernst bodies by their location in the bacillus and their metachromatic staining properties; moreover, both of these varieties of granulation may be present in the same organism. In general it may be said that no relation exists between the number of Babes-Ernst bodies present and the virulence of the bacillus.

Anemia with Chronic Enlargement of Spleen.—After studying the literature of anemia splenica infantiva and anemia infantum pseudoleucemica, A. H. WENTWORTH (*Boston Med. and Surg. Jour.*, Oct. 31, 1901) concludes that these are identical conditions and that the apparent differences are due to the fact that the observations were made at different periods. Before 1890 modern methods of blood-examination were not generally employed; after 1890, when most of the work on anemia infantum pseudoleucemica was done, blood-examinations absorbed everybody's attention to such an extent that observation of the clinical course of the disease was neglected. The blood-changes in so-called splenic anemia are those of a secondary anemia; the degree of anemia varies in different cases. The degree of cachexia may not correspond with the blood-changes, which are often moderate. The cachexia is probably due to a chronic intoxication similar to that produced by cancer or tuberculosis. The mere interference with splenic function from overgrowth of fibrous tissue could not produce the symptoms described as characteristic in these cases; it is known that the splenic functions, whatever they may be, are not essential to life and probably not essential to the health of the individual. While fibrous changes can cause interference with the functions of an

organ, it is not easy to see how they can produce toxin. Besides, chronic fibrous changes in the spleen are associated with a variety of well-known causes, and toxic substances are not present in many of these conditions. The statement that splenic alterations are primary lacks confirmation. Bruhl believes that the splenic enlargement may follow or precede the anemia. Nothing really characteristic of a primary disease has been discovered in any organ or in the blood in reported cases of splenic anemia. There is no apparent connection between the character of the blood and the splenic changes in infancy; there are varying degrees of anemia and of leucocytosis in cases with identical lesions in the spleen. These differences cannot be explained by the duration of the disease.

Respiratory Conditions Dependent upon Gout and Obesity.—The deposit of abnormal masses of fat in the abdominal and thoracic cavities encroaches on the breathing space and diminishes respiratory capacity. The weight of external fat deposits restrains respiratory movements and depositions in the upper part of the abdominal cavity prevent full diaphragmatic excursions. These interferences with lung expansion naturally excite dyspnea upon muscular exercise or upon overdistention of the stomach. Dyspnea is more marked in the anemic than in the plethoric variety of obesity. J. M. ANDERS (*Phila. Med. Jour.*, Oct. 26, 1901) calls attention to a thoracic symptom belonging to over-fatness, namely, pain in the subscapular and intrascapular muscles; clinically this must be distinguished from rheumatic and neuralgic pains. Hyperemic (passive) bronchitis with coughs and copious mucoid expectoration may be due to restrictions of the thoracic movement and to the enfeebled heart action so often present in these cases. Closely connected with this variety of bronchitis and to some extent dependent on it, is asthma. There is also an asthma in obesity due to gastrectasis associated with a high position of the diaphragm. Cases of asthma due to obesity can be cured by attention to the underlying causative liver condition and a rearrangement of the diet so as to overcome the obesity. Gout often plays a prominent part in asthma occurring in obese subjects, and gout occurring independently may also cause asthma. The dry chronic bronchitis of Laennec is recognized as a distinct variety of bronchitis due to the gouty state. The cough is dry, irritative and attended with slight expectoration. Cardiac, renal and articular symptoms of gout may be absent, but there is a high degree of acidity of the urine, a diminished renal output, large coated tongue and hepatic enlargement. The prime requisite to successful treatment is to recognize the cause of the disease and thus make the lithemic state the object of attack.

Gall-Stones.—The great frequency with which gall-stones are not diagnosed *intra vitam* is commented upon by H. FIEDLER (*Munch.*

med. Woch., Oct. 22, 1901). Of 93,000 patients examined, stones were noted in only 133, making 0.14 per cent., while on the other hand at autopsies fully 10 per cent. of the bodies are found to possess them if a careful examination of the biliary system is made. The Roentgen rays may be looked upon as a valuable diagnostic aid in the future, and already a number of excellent photographs have been published. Best results will always be obtained with the strongly calcareous stones, while the rarer ones consisting chiefly of cholestrin or bile-pigment can hardly be expected to throw a shadow. Concerning the origin of gall-stones, most authors are agreed that disease of the mucous membrane of the gall-bladder is the primary lesion and that the myelin and cholestrin liberated from the fatty degenerated epithelial cells form the nucleus around which successive layers will be deposited. The catarrh may be induced by the colon bacillus, which is often found in the bile when its outflow is impeded. The statement that gall-stones frequently follow typhoid the author cannot agree to, since he has found them only in two cases which came to autopsy and never had occasion to treat those that survived for attacks of colic. With reference to the real cause of the severe pains induced by the larger stones in their passage through the ducts, it is questionable whether an inflammation always exists and it is probable that obstruction alone is responsible for those sudden, severe attacks which rapidly yield to morphine and local application of heat. A complete relief from symptoms must never be expected when a stone has been discovered in the feces, since others are generally left behind which will make trouble unless a closure of the cystic duct or atrophy of the gall-bladder has occurred. Other points emphasized are the frequent absence of jaundice with cholelithiasis, the recurrence after operations, which amount to about 15 per cent., and the intimate relation of carcinoma of the gall-bladder and gall-ducts to stones. Concerning treatment the radical surgical methods are not always in place, though much harm has been done by delay.

Ethyl Bromide in Operations upon Adenoids.—In a discussion upon the desirability of a general anesthetic, and the kind to be used, in operations upon children for adenoid vegetations and enlarged tonsils, J. W. GLEITSMANN (*Med. Rec.*, Nov. 2, 1901) recommends the almost invariable employment of some general anesthetic and especially ethyl bromide on account of its safety, its rapid action and few after-effects. It is much superior to either chloroform or the A. C. E. mixture. Ten grams are usually poured into an impermeable mask and after the first few whiffs the entrance of air is practically entirely excluded. Within two minutes the patient is fully anesthetized and generally less than thirty grams are necessary to complete the operation. For operation the child is held in an upright position by assistants, the pharyngeal adenoids are removed first by forceps and then

scraped with a Gottstein curette. The tonsillotomy may be done either before or after the removal of adenoids, but between operations the child's head should be lowered and the blood allowed to flow out. While operating there is usually a reflex spasm of the pharyngeal muscles and respirations are temporarily suspended. It is surprising how seldom any blood enters the larynx.

THERAPEUTIC HINTS.

Chronic Hydrocephalus.—In two cases of this affection WM. EWART and W. L. DICKINSON (*Pediatrics*, Oct. 15, 1901) obtained complete evacuation of the ventricular fluid by tapping and allowing aseptic air to enter as the fluid was withdrawn. To accomplish this, in addition to the exit cannula and drain, a second cannula was provided with a sterile rubber tube the free end of which was connected with the tube of a small glass syringe plugged with cotton after the piston had been removed. This second cannula was inserted somewhat above the other, and too great rapidity of outflow was guarded against. In the first case eight tapplings were carried out, the largest amount of fluid collected being fifty ounces. Each time there was considerable reduction in the size of the head and cessation of the pressure symptoms. There was sometimes a slight post-operative rise in temperature. The hydrocephalic cry gave place to a "baby-wail." The case is still under observation. In the second case there was no re-accumulation of fluid after the first tapping, though oozing continued for several days.

Surgery in Exophthalmic Goiter.—In an exhaustive review of operations for this condition, I. BALACESCU (*Revista de Chirurgie*, Apr. to Sept., 1901) sums up in favor of total bilateral resection of the sympathetic nerve, including the three cervical ganglia. Of 19 cases so treated, 10 were cured, 5 much improved, 2 were failures, one died under the anesthetic, and one from an intercurrent disease. Simple section of the sympathetic as practised by Jaboulay in 8 cases, resulted in 2 cures, 5 improved, 1 death. Twenty-seven cases of partial resection of the nerve gave 9 cured, 11 improved, 2 failures, 5 died. A single case of stretching the nerve by Jaboulay was followed by slight improvement. Comparing the results of total resection of both sympathetics with partial thyroidectomy, the author finds that with the latter operation sudden deaths are numerous, failures more frequent, and the relief from exophthalmos, tachycardia, and nervousness not nearly so marked.

Pendulous Abdomen.—In the case of a loose, flabby, overhanging abdomen for which all known anti-obesity remedies had been tried unsuccessfully A. E. SPAULDING (*St. Paul Med. Jour.*, Oct., 1901) made an elliptical incision on

each side of the median line, from just below the breasts to the center of Poupart's ligament. He removed the integument and fat six inches thick down to the abdominal muscle-sheath, and closed each of the wounds with twenty-five deep silk-wormgut sutures. A marked improvement in the general condition has been noted during the two months which have elapsed since the operation.

Uterine Colic.—

- ℞ Ext. fl. hydrastis Canad.
Ext. fl. hamamelis Virg.
Ext. fl. viburn. prunif., aa 10.0 (3iiss)
Ext. fl. piscidiæ erythrinæ 2.0 (3ss)
Sydenham's laudanum 2.0 (3ss)

M. Sig. Half to one teaspoonful in water, repeated if necessary three times a day.—BOSSI in the "Revue d'Obstetrique et de Gynécologie."

Ovarian Opothrapy.—Fresh ovary taken by mouth has proven efficient in relieving the mental depression, insomnia, vertigo, hot flashes, palpitation, pelvic pains, etc., which sometimes follow removal of the ovaries. The raw ovary of the sheep, sow or cow should be obtained fresh every day, and it should be remembered that most butchers cannot tell an ovary from a gland. It may be taken by mouth, and as many women and girls object to eating ovaries if they know what they are, it may be necessary to have some member of the family disguise them. Ovaries may be dried without harm at 30° C. (86° F.), powdered, and mixed with bouillon or milk.—E. VIDAL in *Le Progrès Médical*, Sept. 7, 1901.

Cæsarian Section.—This is not a difficult operation, writes J. W. ANDREWS (*St. Paul Med. Jour.*, Oct., 1901), and with present methods its mortality is not high. There is very little danger of troublesome hemorrhage. To ensure proper drainage a strip of iodoform gauze should be carried through the cervix, but not up into the body of the uterus, as this might excite contractions and endanger the line of stitches. Owing to the rapid involution of the uterus the stitches could become loose, but this risk may be avoided by a row of stitches through all the tissues except the mucous membrane, and a second row of closely-placed Lembert stitches making peritoneal apposition. Symphysiotomy is more difficult to perform, and not less dangerous. Craniotomy is generally an operation of last resort, is clumsy and not devoid of danger, and the child is not saved.

Glaucoma.—The medical treatment consists of myotics, such as eserine or pilocarpine, as these lessen tension. They should never be used in greater strength than one per cent.; eserine should be dissolved by preference in oil, as it then does not undergo change and does not cause painful spasm; the best salts of pilocarpine are the nitrate and salicylate. The myotics are aided by leeches to the temple, hot compresses, purgatives, etc., but these means are all of temporary benefit only, and are not curative, so recourse must be

had to paracentesis, sclerotomy or iridectomy. At the onset of acute glaucoma, order eserine instillations, three times a day, leeches, hot mustard bath, etc. Never employ atropine. If the tension is so great that the anterior chamber is obliterated, precede with sclerotomy or better with puncture of the vitreous by Graefe's knife. Operation is effective only in acute or subacute glaucoma. Hemorrhage and tumor should be ruled out before operation. With tumor the tension presents extensive fluctuations. Iridectomy is generally good if performed early; if late it may lessen the pain and tension without improving vision; in the aged it is unfavorable. In every case after the operation, myotics must be continued for months or years, for they are of benefit even though the iris sphincter is not intact. In simple chronic glaucoma, operation is useless or harmful, iridectomy sometimes being followed by rapid diminution of vision. The severe cases require eserine, but in mild cases pilocarpine will do. Quinine sulphate and potassium iodide may be given internally, and all medication must be continued for a long time.—F. TRIEN in *Le Progrès Médical*, Aug. 24, 1901.

Herpes Zoster.—

- ℞ Cocainæ hydrochlor. 0.12-0.24 (gr. ij-iv)
Morphinæ hydrochlor. 0.03 (gr. ss)
Sodii chlorid. 0.24 (gr. iv)
Aq. dest., q. s. ad . . 120.0 (3iv)

Use by hypodermic injections in the intercostal spaces, near the exits of the nerves.—SCHARFF (*Le Progrès Médical*).

Favus.—

- ℞ Balsam peruv.
Ac. salicylici
Resorcin, aa 1.3 (gr. xx)
Sulphur præcip. 4.0 (3i)
Lanolin
Vaselin
Adipis benz. aa 7.5 (3ij)

M. ft. ungt. Sig: Apply every night.—BESNIER in *Le Progrès Médical*.

Itching in Measles and Scarlatina.—

- ℞ Ac. carbolic 0.75 (℥ x)
Ol. olivæ, ad 30.0 (3i)

—GOODHART in *Indian Medical Record*.

Liebreich's Ointment for Scabies.—

- ℞ Liq. styracis 15.0 (3ss)
Ol. olivæ 30.0 (3i)

Sig: Rub well in parts, night and morning.

Toast.—The object of making toast is to convert the starch into dextrin, giving the starch its first step toward digestion and the agreeable toast flavor. The bread must first be thoroughly dried, or it cannot be brought to 400° F., the dextrinizing temperature. Toast is therefore crisp to the center and a golden brown. It can be easily broken, is quickly moistened by the saliva, and, what is an advantage with invalids and children, it requires mastication.—H. V. SACHSE in "How to Cook for the Sick."

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SATURDAY, NOVEMBER 16, 1901.

FUNCTIONAL DISTURBANCES OF DUCTLESS GLANDS.

At the October meeting of the Harvard Medical Society, an account of which will be found in our society proceedings for this week, Dr. John G. Perry discussed a series of cases the symptoms of which had been considered as rhumatic in origin, but as the result of the therapeutic test were evidently due to functional derangement of the thyroid gland. This represents an idea in nosology that has not as yet received its proper share of attention.

While in theory it is not hard to recognize the possibility of functional derangements of ductless glands, the effect of these organs under pathological conditions is so recent an introduction to practical medicine that only complete cessation of function, as induced by serious organic lesions, has been considered worthy of careful study. There seems no good reason to doubt, however, that especially in predisposed individuals—that is, in those who are naturally possessed of ductless glands only just capable of maintaining sufficient function to preserve health, some systemic disturbance might easily decrease such function and give rise to anomalous symptoms.

In Dr. Perry's cases he assumes that enduring inhibition of thyroid secretion was brought on by fright or intense emotional strain. In all a definite uniform symptom-complex was present. Four symptoms were constant; a painful condition of the joints resembling the neuro-arthritis described by the late Charcot, headache, a weak and rapid heart, and in women a distinct tendency to menorrhagia. In practically all of his cases Dr. Perry found the usual depression above the sternum obliterated, as if there were enlargement of the lower median portion of the thyroid gland, although there was not true goiter nor exophthalmos. The symptomatic condition was rapidly improved by the administration of from ten to twenty grains of thyroid extract per day. The patients, as a rule, developed no symptoms of intolerance for the remedy. In one series of cases three generations of the same family were involved and the lowered functional activity of the thyroid was probably due to hereditary influences.

In recent years more and more attention has been given to such incomplete types of disease as have been touched upon by Dr. Perry. Atypical abortive cases of Basedow's disease are not rare. Without the exophthalmos or the goiter there may be recurring intervals of rapid heart action, with some muscular tremor and intestinal derangement, usually alternating constipation and diarrhea that betray the character of the disease. These affections are often ascribed to anomalous neurasthenia.

Rheumatism and neurasthenia are words that may be readily used to cover the disinclination to search farther for the causes of annoying symptoms. Another affection that in its incipency may easily be placed in the category of neurasthenia is arteriosclerosis. The precocious degeneration of arteries often gives that tendency to widely distributed symptoms with multiform discomfort that is presumed to be the principal pathognomonic sign of nerve weakness or hypochondriasis. Joint structures very early give discomfort if there is diminished blood-supply or if the presence of alien substances in the circulation disturbs the normal metabolism of their tissues, which, because of their delicate adjustment and frequent use, require to be kept at a certain acme of nutrition.

There is no doubt that the term rheumatism has been very much abused. Dr. Perry's group of cases is of special interest for the reason that it calls renewed attention to the necessity for

more discerning diagnosis in many affections too easily denominated rheumatic. The therapeutics of atypical and chronic rheumatism remains one of the opprobria of medicine and a rich field for the quack and the proprietary remedy, mostly because of the failure to differentiate accurately from each the various affections that are unwarrantably grouped under the heading rheumatism because they present as a prominent symptom discomfort or pain in the use of the joints. A confirmation of Dr. Perry's observations by other clinicians will give us a noteworthy advance in nosology in the recognition of functional disturbances of ductless glands as distinct entities, and will besides achieve that eminently desirable object of adding to our therapeutic armamentarium.

CHRISTIAN SCIENCE A BUSINESS.

CHRISTIAN science, according to a Nebraska Supreme Court decision (*Buswell vs. the People*) is not a religion when practised for the purposes of gain. Ezra M. Buswell, who had never had a medical education and had not received a certificate, was convicted of violating the Medical Practice Act. Buswell, a believer in "Christian science," to whom sick people came, would put his hands upon them and urge them to believe that they were cured. After prayers and exhortation the afflicted persons would sometimes declare that they were cured and express satisfaction with the treatment. It was shown that Buswell frequently received compensation for this treatment. Buswell did not deny that he had applied the "principles" of "Christian science" in treating sick persons, but defended himself on the ground that his doings were simply religious acts, and that no law could be passed interfering with the enjoyment of liberty in religious matters. The Supreme Court held that neither the pretense of worship nor the performance of any other duty should exonerate the defendant from the punishment attached to the violation of the law.

The Court quoted several verses from the eighth chapter of the Acts of the Apostles in which Simon, the Samaritan sorcerer, is rebuked for endeavoring to purchase the power of healing which the Apostle Peter possessed. "And when Simon saw that through laying on of the Apostle's hands the Holy Ghost was given, he offered them money, saying, 'Give me also this power that on whomsoever I lay hands he may receive the Holy Ghost.' But Peter said unto him, 'Thy money perish with thee because thou hast thought

that the gift of God may be purchased with money.'" The incident of the receiving a reward by Gehazi from Naaman, after the latter had been cured by the prophet Elisha, and his consequent punishment are quoted from II. Kings v, 26, 27. "The leprosy therefore of Naaman shall cleave unto thee and unto thy seed forever. And he went out from his presence a leper as white as snow."

In many States, however, noticeably in Illinois, after the repeal of the excellent Medical Practice Act (under which the late Dr. J. H. Ruch achieved such marked success), "Christian science" was given a status which annulled all the good effects of the principle enunciated by the Nebraska Supreme Court.

TUBERCULOSIS FAKIRS.

THERE is rarely a stirring medical subject discussed, but the quacks, who are always alert to turn popular interest to their own advantage, begin to do a little song and dance on their own account.

The announcement made by Koch at the London Congress, seeking to modify the widely-accepted view that tuberculosis can be contracted by drinking the milk or eating the flesh of tuberculous cows, has given the tuberculosis fakirs a brass band and an audience. This is their opportunity. The fakirs are so-called physicians who perform startling experiments, in the daily press, that outrival Koch. Reporters' interviews and testimonies of patients all contribute to swell the interest, and the subject being legitimately started by the London Congress bears the stamp of respectability.

One man in New York, claiming to be a homeopathic practitioner, announces in the reading columns of one of the best dailies that he has a cure for consumption. He uses a mysterious preparation of his own, which is said to be a preparation of cacodylate of soda, which is being extensively tried in the hospitals abroad. For each treatment of this patent charm he is said to charge \$500.00, but so charitable is this benefactor of the race that the newspaper accounts say that he is thinking of giving it free to the public.

The Medical Society to which he belonged has expelled him, and the hospital in which he says he performed his experiments has asked his resignation and has declined to acknowledge or certify any of the favorable results he claims. These formal denouncements in medical

circles do not prevent him from using the name of the hospital on his circulars, or of representing himself as being an interpreter of Koch and the spirit of modern science. With prospective philanthropy on the horizon, he may continue to charm the public into giving him large sums for a well-known and questionably useful remedy for some time to come.

Another method of diverting the general interest in tuberculosis into the special channel of self-aggrandizement is the somewhat startlingly advertized experiment of a certain Brooklyn physician who has inoculated a patient with tuberculous matter from a cow. The attitude is that of the brave man and the noble woman who risk, the one his reputation and the other her life, for the sake of scientific truth.

That the physician promises to cure the patient if she is inoculated and that her faith in his power is sufficient to enable her to calmly take the risk are, we feel, no justifiable basis for the proceeding. No sure cure has as yet been found for tuberculosis, and a man's faith in his own power, no matter how convincing it may be to his patient, cannot convince us that the woman is sensible in taking the risk acquiring a disease for which no one, save a fraud, can guarantee a cure.

That the advertizing element in this case may be purely accidental does not lessen the harm that such discussions bring to those that are in the incipient stages of the disease. A cure! a cure! is their cry, and so long as the public is looking for a cure our task in attempting to save their lives by the patient upbuilding of strength through diet and climate is hopeless.

SUCCESS in advertising quackery seems to be a very uncertain matter, dependent neither on extensive capital nor on skill in "flarehead" advertisements. A "rupture cure" quack who had organized a syndicate and plastered the prominent daily journals east and west with advertisements has just confessed in the bankruptcy court to liabilities of \$58,000 and no assets. He secured the usual National Bank endorsement by investing in National Bank stock, and had wrecked two National Banks by inducing them to discount notes of the "no cure no pay" contract type. Many a National Bank in the West has had to pass to profit and loss thousands of dollars in similar notes. At one time, in 1893, an Indianapolis bank was nearly dragged into a prosecution for misuse of the mails through its discounting such

notes for a local "Institute." The "note" is in the semblance of contract not to pay unless cured, but has been held to be a promissory note. The business "acumen" shown in the discounting of such notes and in loans on patent medicine and "medical institute" stock underlay the downfall of many a Southern and Western National Bank in the era between 1893 and 1899.

ECHOES AND NEWS.

NEW YORK.

Craig Colony Prize Awarded.—At a meeting of the Board of Managers of Craig Colony, held at Sonyea, N. Y., on October 8, 1901, the report of the Prize Committee, consisting of Drs. G. W. Jacoby, Pearce Bailey and Ira Van Gieson, was approved, and the prize of \$200 was awarded to Dr. Carlo Ceni of Pavia, Italy. The successful essay, the title of which is "Sero-therapy in Epilepsy," will shortly be published in the *MEDICAL NEWS*. As announced in the *NEWS* of October 19th, the prize is again offered for universal competition.

Jewish Hospital for Brooklyn.—Articles incorporating the Jewish Hospital of the Borough of Brooklyn were filed November 9th, according to the *Evening Post*, with the Secretary of State. Medical and surgical aid will be furnished without regard to creed or nationality. The directors include Aaron Aaron, Jacob Brenner, Jacob Fuhs, M.D., and Nathan S. Jonas.

New York State Medical Association.—A special meeting of the Fifth District Branch of the New York State Medical Association will be held at the Palatine Hotel, Newburgh, N. Y., on Wednesday afternoon, November 20th. Important papers will be presented by Dr. John B. Deaver of Philadelphia and Drs. Charles E. Quimby and William Rice Pryor of New York. These papers will be followed by discussions. A large attendance of physicians is anticipated from among the members residing in the Fifth District Branch, which includes the Counties of Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster and Westchester. For the accommodation of the physicians in Manhattan who wish to attend this meeting, a special car will be attached to the 11.50 a. m. train, on the West Shore Railroad, Weehawken Ferry. Luncheon will be served at Newburgh at 1.45 p. m. The meeting is called for 2.30 p. m. All physicians are cordially invited to attend.

New York State and County Civil Service Examinations.—Open competitive examinations for positions in New York State and County Departments and Institutions will be held about December 7, 1901, in Albany, Amsterdam, Auburn, Binghamton, Buffalo, Elmira, Hornellsville, Ithaca, Jamestown, Kingston, Lockport, Malone, Newburg, New York, Og-

densburg, Olean, Oneonta, Plattsburg, Poughkeepsie, Rochester, Sandy Hill, Syracuse, Utica, and Watertown, for the following positions: Assistant, Antitoxin Laboratory, Department of Health, \$720; open to women only. Assistant Bacteriologist, Department of Health, \$500 for half time; open to licensed physicians only. Director of Pathological Institute, State Commission in Lunacy, \$5,000; open to non-residents subject to the provisions of Regulation X. Physician, Third Grade (including Junior Physician), State Hospitals, usual salary \$900 and maintenance; open to licensed practitioners who have had at least one year of hospital experience. Applications for these positions must be filed in the office of the commission on or before noon of December 2d.

Sale of Harmful Drugs.—At a meeting of the Society of Medical Jurisprudence last week, Dr. W. H. J. Sieberg read a paper on "The Adulteration of Drugs and the Sale of Harmful Proprietary Medicines." He said that drugs were adulterated and substituted much more extensively and with more serious effects than was generally supposed. "The crime committed against those stricken with disease is so abominable," he said, "that I cannot properly characterize it. I believe the State should compel all proprietary medicines to be submitted to a board of expert chemists and botanists who should determine whether a dangerous percentage of poison was contained as an ingredient and if so refuse to allow its sale. Cupidity is to be found in the drug trade as well as in other places," he said. He found that both adulteration and substitution were largely practised in this city and State. In speaking of the unrestricted sale of poisons he said that a "purely vegetable tonic recommended for inebriates" contained 41 per cent. of alcohol. Many such proprietary medicines, he declared, contained poisons the sale of which if they were not sold in sealed packages would send the druggist to jail. Cough medicines contain opium and morphine in unknown quantities; face lotions, warranted purely vegetable and harmless, poison the user with lead or mercury. The druggist sells all these, and there is no law to stop him because he is supposed to be ignorant of the contents of the packages.

Meeting of Charities and Correction Conference.—The second New York State Conference of Charities and Correction will be held in New York November 19 to 22. The membership of the conference is made up of persons who are interested in public or private charitable or correctional work in the State. The topics for discussion are grouped in several departments under the charge of the following committees: "Hospitals, Dispensaries, and Nursing," Dr. Stephen Smith, New York, Chairman; "Sanatoria for Consumptives," Dr. John H. Pryor, Buffalo, Chairman; "The Mentally Defective," Dr. A. E. McDonald, New York, Chairman; "The Care of Defective, Dependent, Delinquent, and Neglected

Children," Dr. F. Park Lewis, Buffalo, Chairman; "The Institutional Care of Destitute Adults," Mr. Clarence V. Lodge, Rochester, Chairman; "The Treatment of the Criminal," the Hon. George McLaughlin, Albany, Chairman; "Politics in Penal and Charitable Institutions," Mrs. Charles R. Lowell, New York, Chairman; "The Care and Relief of Needy Families in their Own Homes," Mr. Frank Tucker, New York, Chairman; "Improved Housing," Mr. Edward T. Devine, New York, Chairman.

Manhattan Dermatological Society.—A regular meeting was held on Friday evening, November 1, 1901, at the residence of Dr. R. Abrahams. Dr. Wm. S. Gottheil presided.

Dr. R. Abrahams presented a child of eight weeks with an *acute generalized seborrheal eczema*. The lesions were macular and diffuse; the palms and soles were free. Dr. J. Sobel agreed with the diagnosis. The lesions were too highly inflammatory for syphilis and stigmata of that disease were wanting. Dr. Oberndorfer excluded syphilis. Dr. Gottheil remarked that macular lesions in seborrheal eczema are unusual. Dr. J. Sobel showed a child of two and a half years with a *chronic papular urticaria* of the face, arms, thighs, buttocks and legs; the lesions had existed with periods of remission for a year and a half. Itching was intense, the inguinal glands were enlarged and subsequent infection of some papules by scratching had given rise to pustules. The interdigital regions were free. Such cases were frequently considered prurigo mitis.

Dr. Bleiman agreed with the diagnosis, excluding both prurigo and scabies. Dr. L. Weiss believed that such cases were better termed *strophulus infantilis* (Blaschko). This condition is persistent, obstinate and often the forerunner of prurigo. He is of the opinion that this case will eventually develop prurigo. Dr. Oberndorfer inclines toward a diagnosis of chronic papular urticaria. Dr. Gottheil does not think that scabies can be excluded. Dr. Abrahams considers it chronic papular urticaria. Pilocarpine in daily doses of gr. $\frac{1}{12}$ is advised.

Dr. Bleiman presented a boy of eleven years with *prurigo*. Lesions on the extensor surfaces began at two years of age and have persisted since, never disappearing entirely, but improving in the summer and spring. Scalp is free, but face shows papular lesions. Prurigo buboes are absent. Treatment has been given for a long time. Dr. Geyser remarked that the lesions may be the remains of a prurigo. Dr. Sobel thought that in view of active treatment a positive diagnosis at present could not be made. He would prefer to see the lesions in the untreated stage before venturing a diagnosis of prurigo. Dr. Oberndorfer considered it a chronic papular eczema; such cases often last for many years, one of his own being of twelve years' duration. Dr. Weiss stated that this was a positive case of prurigo. The existence of the lesions from infancy and the involvement of the extensor surfaces point toward that diagnosis. The skin is infiltrated, and

while buboes are absent this does not speak against it. Dr. R. Abrahams said that the picture was not one of prurigo. In nine years typical lesions ought to exist all over the body. He considers it chronic eczema. Dr. Gottheil has seen the patient when the flexor surfaces were affected; he considers it chronic eczema.

Dr. Gottheil presented a woman of sixty-four years with *rhinoscleroma* of the nose and lip. The *alae nasi* had the hard, cartilaginous, ivory hardness so characteristic of this condition. The hard palate was also involved. Despite the statements in books this case shows ulceration. The possibility of other parts being involved was mentioned. Dr. Geyser remarked that radiotherapy would only hasten the end of the patient. Dr. Sobel had previously observed this case in the service of Dr. C. W. Allen. In another case seen in the same service the lesion had encroached upon the postnasal space to the larynx, necessitating a tracheotomy. Ulceration certainly occurs. Rhinoscleroma may occur primarily in the tonsil, in which case differentiation from chancre and cancer becomes necessary. Dr. L. Weiss remarked that ulceration may occur when the vitality of the tissue is encroached upon by pressure.

Dr. L. Weiss presented a case of *keratosis follicularis* of the forearms.

Dr. Oberndorfer presented a young man with multiple lesions of *molluscum contagiosum* of the penis. The situation was interesting and rare. In children the lesions often become infected and cause pustulation. The condition is both auto- and hetero-inoculable. Dr. Bleiman has observed similar cases in children, but always with other lesions on the face, chin or body. Dr. R. Abrahams has seen the condition in several members of a family. Dr. Gottheil observed one case in which numerous mollusca were situated on the penis and scrotum. Subsequent infection may give rise to furuncular lesions.

Dr. R. Abrahams presented a man of fifty-seven with *atrophia cutis propria* of both lower extremities. Forty years ago eczematous lesions were observed in the popliteal space; later similar lesions appeared at the ankle. This was followed by atrophy, varicose veins and ulceration. Dr. Sobel stated that at first scleroderma suggested itself. He considers it an atrophy due to a tropho-neurosis. Dr. Oberndorfer considers it a clear case of *atrophia cutis propria*. It now presents atrophy of the cutis propria, varicose veins, and ulceration. There is in all probability no relationship between the varicose veins and atrophy, otherwise atrophy of the skin would be more commonly observed. It is a tropho-neurosis of some kind. Dr. Gottheil has observed but one similar case. In this case the erythema at the edges points to an inflammatory condition.

Dr. Gottheil showed photographs of cellulitis of the lip, secondary sarcoma cutis, generalized lichen planus, lichenification in old eczema, erythrasma of the buttocks, dysidrosis, and erythema multiforme.

PHILADELPHIA.

University of Pennsylvania.—At the trustees' meeting last week the following changes were made in the faculty: Dr. Charles Mills was appointed clinical professor of nervous diseases, vice Dr. Horatio Wood, resigned; Dr. W. G. Spiller, assistant professor of nervous diseases, and Dr. Charles Burr, professor of mental diseases.

Mutter Lecture.—The Committee on the Mutter Museum of the College of Physicians of Philadelphia wish to announce that the Mutter lecture for the year 1901 will be delivered on Tuesday, December 3, 1901, at 8 p. m., in the Hall of the College of Physicians. Dr. Harvey Cushing of Baltimore will deliver the lecture, the subject being "Some Experimental Observations Relative to the Surgery of the Nervous System."

Testing of Diphtheria Antitoxin for the Tetanus Bacillus.—In view of the deaths in other cities from tetanus following the use of infected diphtheria antitoxin, the Board of Health has taken measures to guard against such an occurrence in this city. Orders have been issued that all the antitoxin supplied by the city shall be tested to determine the presence or absence of the tetanus bacillus.

Increase in Almshouse Expenses.—The estimates for maintenance for the Philadelphia Almshouse are about \$100,000 more for the coming year than for the past one. Part of this is due to proposed additions to the force of employees, but the greater part is caused by an increase in the price of provisions and an increased population. The sum of \$365,000 is asked for new buildings, including a pavilion for consumptives, a clinical amphitheater, obstetrical and gynecological ward, pavilion for nervous diseases, and a pavilion for general medicine.

Miners' Petition for New Hospital.—A committee has been chosen by a meeting of miners at Pine Grove to petition the Legislature for the establishment of a miners' hospital on Broad Mountain, ten miles from Pine Grove. It is claimed that a hospital is needed for that section comprising portions of Lebanon, Schuylkill and Dauphin Counties, which are so far removed from the hospital at Ashland that fatalities result from accidents when the patients could be saved by more immediate hospital facilities. The population of the section in question is about 50,000.

Dr. Osler a Guest of the College of Physicians.—Dr. William Osler was the guest of honor at the meeting of the College of Physicians, November 6th. Dr. Osler gave a short sketch of Sir Thomas Brown and his writings, the purpose of the sketch being to give a brief history of the man and his productions and "to introduce to their final resting place" an almost complete collection of the various editions of the books, which are ultimately to become the property of the College. Lantern slides of buildings, etc., associated with the life of Sir Thomas Brown, and of the title pages of the various edi-

tions of his writings, were shown. Sir Thomas was characterized by Dr. Osler as being one of the three great *littérateurs* of the medical profession.

To Protect Rivers from Pollution.—The Supreme Court of the State has recently handed down a decision which is believed to be of great importance to the cities of the State. The suit in question was that brought by a flour-mill company against the Lehigh Coal and Navigation Company, which caused a loss of water power by filling the stream above with dirt and refuse. The Court maintains: "It is not to be doubted that an injunction is the appropriate remedy for the prevention of trespasses and nuisances, which, by reason of the persistency with which they are repeated threaten to become of a permanent nature." It is believed that this ruling will have considerable influence in deciding the litigation brought by City Solicitor Kinsey to protect this city's water-supply from contamination by the filth which industrial establishments and coal companies persist in dumping into the Schuylkill River.

Philadelphia's Filtration Plant.—Bids have been asked for constructing what is said to be the largest filtration plant in the world. It is to be located at Tordedale and receive its supply from the Delaware River. The design is for fifty-five filter beds, with a capacity of 100,000,000 gallons of water daily, so placed that fifty-five more can be ultimately added. The cost will be in the neighborhood of \$3,000,000. West Philadelphia and some of the northern suburbs will still continue to receive their supply from small filtration plants using Schuylkill water. The beds will not differ in construction from those already in use except that no sedimentation basin will be provided, the clearness of the Delaware water making such preliminary work unnecessary.

Pseudoleucemia and Lymphatic Tuberculosis.—At the November meeting of the College of Physicians Dr. Joseph Sailer reported four cases of apparent pseudoleucemia due to lymphatic tuberculosis, or Sternberg's disease. Three of the cases have proven to be such by autopsy. He believes that this is the condition in all the cases of so-called Hodgkin's disease. In the discussion Dr. Osler said that the term Sternberg's disease was not used to include all cases of lymphatic tuberculosis. Tuberculous adenitis has long been recognized as a distinct affection. What Sternberg has shown is that certain cases which clinically and anatomically are those of Hodgkin's disease are by inoculation experiments proven to be tuberculous. Dr. Osler holds that there is a true Hodgkin's disease apart from these cases of Sternberg's description. Dr. John H. Musser stated his belief that Hodgkin's disease in the larger number of cases is lymphatic tuberculosis. Dr. Alfred Stengel said the matter was reduced to the question of whether there was a disease related to leucemia apart from lymphatic tubercu-

losis. He reasons that if leucemia is not tuberculous in nature, then there is a true Hodgkin's disease. He believes the attitude of the profession should be that of expecting more proof from those who say that Hodgkin's disease is tuberculous in nature. Dr. James Tyson said that the cases reported by Dr. Sailer showed an absence of superficial gland involvement, as in the groin, axilla, etc., which is usually seen in cases of Hodgkin's disease. Dr. Sailer stated that the glands in these cases were not softened nor in any other way like those in general lymphatic tuberculosis. He called attention to a recently reported case of leucemia which was tuberculous in nature. He thinks the burden of proof lies with those who hold to the opinion that there is a true Hodgkin's disease. The weight of evidence is against that view.

CHICAGO.

State as Antitoxin Maker.—Dr. Herman Spalding favors the State control and manufacture of antitoxin in view of the recent deaths from its use in St. Louis. He also suggests that the State supply the serum at cost, as the most effective way in which the poorer grades of the article may be driven out of use. There is little doubt that the recent deaths caused by impure antitoxin in St. Louis would not have occurred had the serum used been properly manufactured and tested. Dr. Spalding says there has been a large profit in the manufacture of the article, and many cheap grades have been placed on the market. If the States would take up the manufacture of the serum, say at their State universities, and provide for the sale of the same at cost, he thinks it would solve the whole problem. Every State should enact such a law and enforce it. The law should provide for State supervision of the manufacture of the article, which should be prepared by the best chemists at the universities and its purity assured.

Gift of Two Beds to St. Luke's Hospital.—Edward Finley and wife have conveyed real estate to the value of \$10,000 to St. Luke's Hospital, and in return the Hospital is to endow two new beds to be called the "Edward and Dorcas A. Finley Beds." Mr. and Mrs. Finley are to have the right of selecting patients for the beds whenever they are vacant, and if occupied they are to have the preference over any other applicants. On their deaths, the right to make nominations is to go to some person designated by them.

Swedish Award to Dr. Senn.—News has been received from Stockholm that among the persons whose names are under consideration by the committee in charge of the award of the Noble Prizes are Dr. Nicholas Senn of this city and Thomas A. Edison of New York. Dr. Senn will be in the group of medicine and surgery and Mr. Edison in the group of chemistry. The prizes will be awarded on December 10th, and are five in number—physics, chemistry, medicine, literature, and promotion of peace.

Investigation of Insane Hospital at Dun-

ning.—This institution is undergoing an investigation at the present time. Some of the charges that were made may be epitomized briefly as follows: That by reason of the lack of heating in the cold days of early October, half a dozen insane patients became sick with pneumonia and one death resulted; that several hundred insane patients are caused great suffering by being compelled to walk in cold weather from the detached wards to the main dining-room, although their clothing consists of nothing but overalls, thin jackets, slippers and straw hats, without any underwear or overcoats. The distance is five thousand feet, and the trip must be made for each meal, even when the thermometer is below zero. That the supply of clothing and bedding has been allowed to fall so low that even inside the wards there is often great suffering. That there are no proper facilities for caring for the sick, and that there is not one trained nurse in the institution. That the drug supply is kept down to the lowest limit, so that often needed remedies cannot be given when the physicians prescribe them. That the food, although of good quality, is carelessly cooked and often spoiled in the kitchen. That while the exposed portions of the wards for the insane are scrupulously clean, any amount of filth is permitted where it will not be noticed, and that, especially in bathing the patients, sanitary precautions are not taken. That the consumptive patients are allowed to mingle with the insane, and that a number of cases of tuberculosis have developed among the latter because of this contact. It will be interesting to watch the outcome of this investigation.

Traffic in Cadavers.—Dr. F. M. Schoenleber has been arrested on the charge of shipping dead bodies from this city to other States. He will be prosecuted by the State Board of Health under the statute forbidding the removal of human remains from the State without a permit from the proper health officials.

Not Guilty.—On October 31st Judge Tuley instructed the jury to bring in a verdict of not guilty in the case against Dr. Arthur R. Reynolds, Commissioner of Health, and Matthias Brand, formerly a member of the Board of Health, in the suit of Mrs. Mary E. Moore, who sought to recover \$25,000 damages on account of alleged detention in the isolation hospital.

Aneurism of the Aorta Simulating Mediastinal Abscess.—Dr. Otto T. Freer presented this case to the Chicago Medical Society, November 6th. The patient was a negro, aged forty-two years. He gave a history of pain under the sternum, on the left side of the thorax and between the shoulder-blades, which had existed since about the first of July. The patient suffered from constant dyspnea, which began suddenly in August after a paroxysm of coughing. A few days later he coughed up a little blood. Since this time the cough and profuse expectoration have been, with the dyspnea, the

main features of the disease. Observation of the patient at the Presbyterian Hospital for two months showed but one day when he had a temperature above the normal. The dyspnea was constant, but varied in degree and became alarming when there were paroxysms of coughing, suffocation often seeming imminent. Examination showed dulness under the manubrium sterni and on either side of it. This area of dulness extended downward until it merged into that of the heart. The apex beat was displaced downward to the sixth interspace. Tracheoscopy with the aid of sunlight showed a narrowed place in the trachea just above the bifurcation, while the windpipe was seen to be pushed over to the right. There was no paralysis of the recurrent laryngeal nerve nor any other symptoms of nervous compression, but some dilatation of the veins of the face, neck and arms indicated moderate compression and stenosis of the superior vena cava. The continued expectoration of large amounts of material that was more purulent than mucous in character, the freedom of the other intrathoracic organs, with the exception of the trachea and vena cava, from pressure, together with the great degree of the tracheal stenosis, made it seem probable at first that the compressing mass was small, intimately connected with the trachea and most likely an abscess of the mediastinal flamed its wall and that was discharging into its glands that had perforated the trachea, had in-lumen.

The absence of fever, marked improvement resulting from rest in bed, the severity of the pain, the unvarying character of the symptoms during the long period of observation and especially the shadow characteristic of aneurism shown in the radiograph, finally lead to the adoption of the diagnosis of aneurism of the aortic arch. Further proof of its existence was furnished by the appearance later of distinct pulsation in the jugular. Bruit and tracheal tugging were absent.

Secondary Tuberculous Cystitis Colli.—At the same meeting Dr. L. E. Schmidt reported a case, the patient having been presented to the Society four months previously. He suffered from frequent urination both day and night, with tenesmus. Urine was very turbid. Frequently had terminal hematuria; constant loss in weight, appetite, and gradually became weaker, until he was finally obliged to quit work and confine himself to bed. Rectal examination revealed a nodulated prostate, and the secretion from here showed tubercle bacilli. On cystoscopic examination a secondary tuberculous cystitis colli was diagnosed. Local treatment of prostate, both per rectum and urethra, was made, general constitutional treatment instituted, and many tubercles around the internal ureteral opening and within the trigonum were cauterized with the aid of the Kolischer cystoscope. The cystitis colli has almost disappeared, likewise the symptoms, and the patient has gained thirty-one pounds in weight. Dr. Schmidt reported two other interesting cases.

GENERAL.

Russia and its Physicians.—The number of male physicians in Russia is 14,784; that of female physicians is 624, but it will soon be larger, as there were last year 869 female students in the Medical Institute for Women.

Indian Territory Medical Association.—The next meeting will be held at Muscogee, Indian Territory, the first Tuesday and Wednesday in December.

Consumption Cars.—In consequence of the increasing demands upon the Western and the Southern railroads for transportation for consumptives, the Transcontinental Passenger Association has prepared a plan, for the consideration of all the railroads, looking to the provision of a special consumption car, or ward, on each train. This subject will be acted upon at a meeting of the general passenger agents to be held in St. Louis on November 19th.

Church Hill Medical Society.—The program for the winter of 1901-'02 is as follows: "Pneumonia in Infancy and Childhood—Its Recognition and Treatment," by Dr. Garcin; "Broncho and Lobar Pneumonia in the Aged—Recognition and Treatment," by Dr. Parker; "Pleurisy—Its Varieties, Recognition and Treatment," by Dr. Blankingship; "Croup, Simple and Membranous—Recognition and Treatment," by Dr. Beazley; "Acute Rheumatism in Childhood and Adults—Its Symptoms and Treatment," by Dr. Virginius Harrison; "Acute Tonsillitis—Varieties, Symptoms and Treatment," by Dr. Barksdale; "La Grippe, Complications, Varieties and Treatment," by Dr. St. J. Oppenheimer; "Neuralgia, Varieties, Recognition and Treatment," by Dr. Gay; "Acute Bronchitis—Recognition and Treatment," by Dr. Cosby; "Diphtheria—Recognition and Treatment," by Dr. C. W. Massie; "Measles—Diagnosis and Complications, and Treatment," by Dr. Hord; "Chicken-Pox—Diagnosis and Treatment," by Dr. Collins.

New Hospital Planned by St. John's Guild.—The thirtieth annual meeting of St. John's Guild was held Tuesday evening, November 12th, at the Berkeley Lyceum. A general review of the work of the past year appeared in the reports of the various officers. It was announced that after a long-continued investigation into the needs of New York for a convalescent hospital, the trustees have decided to establish such an institution on the Guild's property at New Dorp, S. I. The hospital will be open the entire year for the care and treatment of women and children during convalescence. Funds sufficient to carry out the idea are not yet in the hands of the trustees, but tentative plans have been prepared, and were illustrated by stereopticon at the meeting last night. They call for fireproof buildings, specially adapted to the purpose, which will take the place of the frame building now used as a summer hospital.

Sells Diplomas to Midwives.—Dr. Charles P. Kreizer, who has been arrested repeatedly for

being concerned in suspicious schemes connected with the practice of medicine, was summonsed to Jefferson Market Police Court November 12th by Agent Agnew of the Children's Society, who is also a Board of Health Inspector. Inspector Agnew told Magistrate Meade that Kreizer was president, faculty and board of examiners of the "Columbia College of Midwifery," which had one room on the ground floor of a tenement at 333 West Thirty-fourth Street and a clinic in equally humble quarters at 242 West Thirty-third Street. Women anxious to become midwives were induced to take a "course" of three hours' weekly instruction for three months and to pay as high as \$100 for an elaborate diploma with an impressively large seal. Kreizer could not be charged with any specific fraud and was discharged.

The New York Academy of Medicine.—A stated meeting will be held at Hosack Hall, Thursday evening, November 21st, under the auspices of the Section on Medicine. The following program is planned: "Some Remarks on the Diagnosis of Cirrhosis of the Liver," by Dr. James C. Wilson of Philadelphia; "The Operative Treatment of Ascites in Cirrhosis of the Liver," by Dr. George Emerson Brewer of New York; general discussion by Drs. F. Tilden Brown, Morris Manges, George L. Peabody, Beverly Robinson, Andrew H. Smith, and others. These papers will appear in the MEDICAL NEWS.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, November 2d, 1901.

REOPENING OF THE MEDICAL SCHOOLS—DECLINE IN THE NUMBER OF ENTRIES—THE MEDICAL SOCIETIES—INOCULATION AGAINST TYPHOID FEVER—THE HEALTH OF THE KING—DIAGNOSIS IN ABSENTIA.

THE reopening of the medical schools in October used not many years ago to be made the occasion for a ceremonial display of some kind intended to impress the newly-captured neophytes. The chief feature in the "function" was an inaugural address in which the orator rhapsodized to the best of his power on the nobility of the medical profession and gave much good advice to the students. These homilies were for the most part so dull that the preacher might have been excused if he had gone to sleep in delivering them, as the Duke of Devonshire is said to have done over one of his own speeches. Sometimes, however, what dramatic critics call "comic relief" was provided when a man who, it was known, would stoop to pick guineas out of the gutter unctuously denounced the pursuit of filthy lucre and urged his guileless hearers to look upon the practice of medicine as a priesthood of philanthropy. Sometimes the orator made a peacock-like display of borrowed—or it might be, purchased—feathers of

classical erudition. A presidential address not long ago delivered before a certain association was horribly stuffed with quotations from various tongues, ancient and modern, to the admiration of the audience, who had no suspicion that these elegant extracts had been supplied by a local schoolmaster. In the Harveian Oration delivered the other day before the London College of Physicians by one of the Fellows of that august body, the speaker seemed to have ransacked every available dictionary of quotations, and it must be admitted that he showed not a little ingenuity in working the tags there found into the patchwork of his discourse. This kind of pedantry is not so common as it was, but it is still considered by pundits of the pompous academic type to be a mark of culture, and they think it necessary to make a display of literary bunting to impress the minds of the vulgar. They act on the principle of Dr. Jobling in "Martin Chuzzlewit," who would fire off some scraps from the Latin grammar that people might speak of him as "a well-read man, a classical scholar."

The introductory address, however, is felt to be a bore, and for some years past it has at one school after another been allowed to fade into nothingness. It still survives in some of the smaller London schools which have a fierce struggle for life, and in some of the newer provincial schools it is used as a means of advertisement.

The entries both at the London and the provincial medical schools this year show a marked and progressive falling off as compared with the two previous years. This diminution is doubtless due to the increased length of the curriculum which now extends over five years and has become proportionately more costly. But the profession in this country is largely overstocked, and a lessened output of doctors is not likely to cause inconvenience to the public.

As a curious illustration of the competition between our too numerous medical schools, it may be mentioned that some of them decline to furnish returns of their entries on the ground that cooked figures are supplied by rival institutions, which thus are made to present a deceptive appearance of superior prosperity. It is hinted by those who ought to know what they are talking about that this manipulation of figures is carried out to such an extent in the London schools as to make the returns quite untrustworthy.

The medical societies are again in full blast. The most interesting debate so far has been one which took place on October 28th at the Medical Society, where Drs. Elliot and Washbourn, who saw much of typhoid fever in South Africa, gave an account of their experience, particularly in regard to the protective value of inoculation. The mortality of the cases which passed through their hands was 13.7 per cent., practically the same as that of the Metropolitan Asylums Board of London during 1900, but almost double that of the Johns Hopkins cases. With regard to the influence of inoculation in averting a fatal issue, they stated that the mortality was 10.7 per cent. in 186

patients who had not been inoculated and 16 per cent. among 25 who had been inoculated. Adding together cases recorded at other hospitals the mortality among 120 inoculated cases was 7.4 per cent. and among 556 not inoculated 10.9 per cent. These figures in the author's opinion did not show that any marked beneficial influence could be attributed to inoculation. With regard to incidence they found that among 224 persons inoculated the proportion attacked was 11.4 per cent. and among 157 not inoculated it was 14.6 per cent. From these figures they drew the conclusion that inoculation was not of any practical value in preventing the disease. As Dr. Washbourn can speak as one having authority in regard to fevers, his opinion will generally be received in this country as going far to discredit antityphoid inoculation. It is not surprising, therefore, that his communication moved Professor Wright of Netley to a certain degree of argumentative pyrexia in defending his intellectual offspring. He pleaded that the adverse conditions in South Africa might have counteracted the good effects of inoculation, and quoted statistics collected by himself which showed that of 8,600 persons inoculated 2.4 per cent. contracted typhoid, while of 41,000 not inoculated the percentage attacked was 5.75. A case mortality of 12 per cent. occurred in inoculated and one of 21 per cent. in the uninoculated. He recommended that in order to give the method fair play every person should be inoculated twice. A small dose of the protective serum gave a temporary immunity and a large dose a period of increased susceptibility followed by a later and more permanent immunity. The experience of Drs. Tooth and Rolleston, also gained in South Africa, was favorable to inoculation, and Surgeon-General Cayley stated that if he were going out to South Africa again, he would be inoculated twice on the voyage out. The most practical contribution to the debate was made by Surgeon-General Muir, Deputy Director General of the Army Medical Service, who said that the question as to the value of inoculation could be decided only on the analyzed results of thousands, not hundreds, of cases.

In a previous letter reference was made to rumors about the health of King Edward, which have been flying about in all ranks of society here ever since his accession. Everywhere one heard it stated with the most positive confidence that His Majesty was afflicted with the same disease which caused the death of his brother-in-law, the Emperor Frederick, and his brother, the Duke of Saxe-Coburg. I pointed out that there was absolutely no foundation for the rumor, which probably had its origin in the appointment of Sir Felix Semon as one of the King's physicians. The appointment of a specialist to such a post was certainly a departure from precedent, but it does not need for its explanation so portentous a hypothesis as that the King is suffering from cancer of the throat. Semon is a German, and as such naturally inspires confidence among the Royal family, who are more German than English. The

Princess Christian persistently puffs Pagenstecher and has sent half the British aristocracy and a large proportion of our snobocracy to Wiesbaden. He was brought over to the Isle of Wight to see Queen Victoria, though the visit was kept dark. In addition to being a German, Semon is a Jew, with his full share of the pushfulness of his ancient race. Opportunity has done much and importunity has perhaps done more in advancing his fortunes; and the result is that he basks in the somewhat inane smile of the sovereign ruler of these realms. Let it be understood that Sir Felix Semon deserves his good luck. He is an excellent physician, though much inferior to Morell Mackenzie as an artistic performer with the laryngoscope, and he has the bump of veneration for the great very highly developed. It is natural, therefore, that he should have found favor in the eyes of the King, but to infer from this that His Majesty has cancer is very bad logic.

The rumors to which I have alluded have for the first time found expression in the newspapers during the past week. A paper which mainly circulates among the working classes published a highly sensational announcement that the King was suffering from cancer of the larynx; that three operations had been performed; that his Majesty's voice gets huskier week by week; that quite recently the King was seized with difficulty of breathing and that an immediate operation had to be performed, which gave only temporary relief, and that serious developments are expected. These statements are evidently taken from a remarkable article in an American newspaper purporting to be written by Dr. Leffingwell Hatch of New York. In that article it is stated that Dr. Hatch was one of the delegates from the United States presented to the King on the occasion of the Tuberculosis Congress, and that from the hoarseness of the King's voice he came to the conclusion that His Majesty was suffering from papillomata of the larynx. For further detailed statements as to operations performed on the King, as to Dr. Leffingwell Hatch having been "unofficially" consulted on the case, etc., the editor of the paper in which the doctor's statement is published appears to be responsible. But the honor of the diagnosis belongs to Dr. Leffingwell Hatch alone, and it is right that he should have it, for it is altogether a record achievement. The doctor, in fact, recognized huskiness in a voice which he could not have heard at the audience—for the excellent reason that he was not there. The official list of the foreign delegates presented to King Edward VII. at St. James's Palace on July 25th is now before me, and the names of those chosen to represent the United States are there given as Professors Osler and Janeway. Dr. Leffingwell Hatch's name is conspicuous by its absence. His article is illustrated with diagrams of the larynx and with what I take to be a picture of himself with a laryngeal reflector on his forehead. Surely such apparatus is superfluous for a man who has the power of discover-

ing what there is in a man's throat without seeing the patient.

TRANSACTIONS OF FOREIGN SOCIETIES.

French

DISSEMINATION AND LOCALIZATION OF ANTIMONY IN ANIMALS—OZENA AND METHYLENE BLUE—PENETRATING WOUND OF THE SPINAL CANAL—PENETRATING WOUND OF THE SPINAL MENINGES WITH ESCAPE OF CEREBROSPINAL FLUID—GUNSHOT FRACTURE OF THE SKULL.

M. G. POUCHET, at the Académie de Médecine, Oct. 1, 1901, read a paper on the dissemination and localization of antimony in the system of animals, especially of rabbits and dogs, with the view of indicating the sites of its deposit and spread in man. His first animal was a rabbit and weighed 1095 grams; it absorbed 30 doses of tartar emetic each 0.005 grams, representing 0.054 grams of antimony. It was then killed. A search for the poison was almost negative except along the digestive tract; the skin and the fur gave only the slightest possible reaction. This experiment lasted fifty days. Three other animals, weighing respectively 2,000, 1,960 and 1,890 grams, were fed the drug for 115 days, absorbing in that time 1,314 grams of the metal. At first the animals increased in weight and otherwise improved, but during the last of this period lost their fur, which had up to the alopecia become more lustrous, and their skin also became scaly and peeled off, leaving red excoriated areas. At the autopsy all the organs appeared practically normal, except those of the gastro-enteric system, where alone the drug was distinctly found. The brain was absolutely negative; the skin, nails, hair, liver, spleen, bones, kidneys, muscles, etc., were all virtually without reaction or at most with a slight reaction. Dogs gave the same manifestations. The addition of even a little arsenic hastened the clinical conditions, especially those of the nervous system, and the findings at the autopsy were considerably altered. The cerebrospinal axis, muscles, liver, etc., contained arsenic, but no antimony. The bones contained each in traces. The skin and hair also showed both, with considerable increase in antimony. The digestive tract had much more antimony and considerable arsenic. The administration of other drugs of the class of bromide of potash appeared to have much influence in the symptomatology and in the distribution and quantity of the findings.

HALLOPEAU, at the next meeting, Oct. 8, 1901, gave a few notes suggested by the work of Bounet (Massiac) on the treatment of ozena with methylene blue. A two-and-a-half-per-cent. solution is used as an irrigation, at first thrice, finally once daily, always with most favorable results within about three or four weeks. It has the unfortunate disadvantage of staining the lips and nares. In syphilitic ozena it appears to limit only the secondary infection, having no influence upon the syphilis.

LOISON, military surgeon, at the Société de

Chirurgie, Oct. 2, 1901, narrated the facts of a case of a small caliber projectile, movable within the spinal canal. The soldier was shot in the back, in the lumbar region, with a Flobert rifle. Radioscopy gave no tangible results. Physical examination revealed only the wound of entrance. Radiography disclosed the ball in the sacral region about two centimeters from the surface. Judging from the external wound, the ball probably entered between the second and third lumbar vertebrae and then once within the canal fell by its own weight as far as the cul-de-sac of the arachnoid would permit. Upon the cadaver, he proved that such a condition could easily exist. Trepanation and exploration failed to find the ball. A second radiographic picture showed its movability. Then the method of Contremoulin served to locate and extract it.

MATHIEU (army surgeon) in behalf of M. L. Giss (Thionville) reported a case of penetrating stab-wound of the neck at the level of the sixth vertebra. About twenty-four hours after the injury a serous fluid began to issue from the wound and the patient showed paresis of the right upper extremity. As the point of the knife remained in the wound he diagnosed its entrance through the meninges. After some difficulty this fragment was removed and the cerebrospinal fluid continued to ooze at the rate of four or five liters a day on some occasions. The outflow suddenly stopped itself. The total loss appears to have been about thirty liters. A long slow recovery followed. The recovery has persisted for two years up to the present.

PICQUÉ also reported a gunshot case for Toubert (military surgeon) involving the right temporal region in a large fracture. Primary trepanation could do little. Tamponade of the wound was necessary. At the autopsy, three days later, it was found that the ball had lodged in the left optic tract posteriorly, after having damaged the right also. During life glycosuria and albuminuria appeared after the injury—perhaps because the ball damaged or passed near the floor of the fourth ventricle.

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Stated Meeting, Held Saturday, October 26, 1901.

The President, Howard Lilienthal, M.D., in the Chair.

Functional Derangements of Thyroid Gland.

—The paper of the evening was read by Dr. John G. Perry and detailed a series of cases in which functional disturbance of the thyroid secretion seemed to be the basis of a distinct pathological condition. Dr. Perry said it is now well recognized that myxedema is the result of the entire absence of the thyroid gland. With the question of symptomatic affections due to lessened function of the thyroid, however, there is much uncertainty. He has found in the experience of the

last few years, a series of cases in which especially the therapeutic test of relief after the administration of thyroid extract has forced him to the conclusion that functional disturbances of the thyroid are not infrequently the basis of obscure symptoms usually attributed to other causes.

Symptomatic Picture.—The symptoms presented by the patient who derives benefit from the thyroid treatment under Dr. Perry's care presented a decided uniformity. Five symptoms were usually present. The most noticeable of these was pain in the joints. The other symptoms were a feeble and rapid heart, a tendency to headache, not localized but general; in women, menorrhagia and the usual development of the symptom-complex after a shock or fright. Because of the presence of the pain in the joints, nearly all the cases had been treated for rheumatism. In some of them, after the failure of rheumatic treatment, physicians had come to the conclusion that suppressed gout existed, and treatment for this condition had been applied. The joints were not red and usually were not very tender. There was frequently a pallid swelling with slight tenderness, resembling the conditions which develop in the so-called neural arthropathy described by Charcot. One of Dr. Perry's typical patients was an unmarried woman who was thought to be suffering from suppressed gout. She had not been benefited by any therapeutic measure employed. She was gradually drifting into a helpless condition of invalidism. In addition to a peculiar pallor of the face, the eyes were drawn together, and the pinched expression, with compressed lips, indicated an intensely neurotic condition. This was noticeable particularly during her painful attacks. The attacks were not associated with flatulency nor gastric disturbance and did not simulate migraine. The day after an attack she would be up, feeling reasonably well, but without appetite and physically depressed.

Local Symptoms.—Her so-called attacks of gout were localized in the knee. This was not swollen nor reddened, but was puffy and tender. In women increase of menstruation was a marked feature and in this case this symptom evidently rendered the condition more serious. Examination disclosed the presence of a flabby uterus presenting much less resistance to the examining finger than usual. Derangements of the gastric function were common, but seemed to have no necessary connection with the attacks. The urine was negative and, though special attention was given this point, no urates nor uric acid in excess were found to be present. In a word, the only reason for the diagnosis of suppressed gout were the uncomfortable feeling in the joints and the culmination of this feeling at stated intervals.

Presumed Etiology.—When the patient herself was asked to state what she thought to be the cause of her condition she attributed it to a railroad accident, in which for a time she had become separated from a very dear friend, and had concluded that that friend was beneath the

wreck. Inquiry among friends elicited the fact that the railroad wreck had been a very serious one and that the condition of mind that developed in the patient as a consequence of the supposed loss of her friend after going through a period of serious personal danger had been amply sufficient to produce an intense emotional strain.

Psychical Symptoms.—Some of the most important symptoms in this case were mental. The patient had never been considered eccentric. Since the accident, however, she had become abrupt and forbidding in her manner, and, though more or less unconsciously to herself, not infrequently insulted old and dear friends. After talking quietly with a friend for some time, she was apt to interrupt the conversation and take her departure from the room or the house, and, from being a rather sensible person, had become extremely sensitive.

Treatment.—The only physical sign in the case that seemed to provide a possible rational indication for treatment was the filling in of the suprasternal notch. With the idea that the thyroid gland or some disturbance of its function might have to do with the symptoms, psychical as well as physical, extract of thyroid was given for some time. At first, one five-grain tablet of thyroid extract was given every day. Two tablets for some days and, as there was not any nausea nor heart disturbance, the dose was increased to three, and was continued for some months. After the first month there was a notable decrease in the symptoms. After a year of treatment the patient was advised to take only two tablets a day, but to resume the taking of more of the extract, even to four tablets a day, if any of the old symptoms recurred. She has had no attacks now for several years.

Theory of Etiology.—As the result of the therapeutic test, the only consistent theory of the etiology of the symptoms was that the shock to the nervous system had caused a diminution of the function of the thyroid gland. As soon as sufficient thyroid extract was supplied the patient improved and this improvement has continued. There remains, of course, the important question as to how long the patient shall have to continue the use of thyroid extract. There is every reason to hope that the improvement of the general condition consequent upon the taking of thyroid extract will foster also the nutrition of the thyroid gland and bring it once more to perform its function as completely as before. In the meantime, the continued relief of symptoms leaves no room for hesitation that the thyroid extract has been effective as a therapeutic measure.

A Second Typical Case.—This patient was the daughter of an old army friend. She was sent from a distant city in the fourth month of her pregnancy. She was in an intensely neurotic condition. The headache, the tender joints, the liability to exacerbations and the feeble, rapid heart, with obliteration of the suprasternal notch were distinctly present. There was no menorrhagia, but this had existed before her concep-

tion. She was put at once on five-grain tablets of thyroid extract. The case proved, however, extremely obstinate to thyroid medication. No improvement was noticed for two months. Then she began to gain in weight and her other symptoms rapidly improved.

Appearance of Child.—The delivery was normal, although there was some terminal uterine inertia that required assistance. The appearance of the baby was, as the grandparents described, humorous, to say the least. The nurse called attention, when the baby was about a week old, to a constant habit of rotation of the head, which the baby exhibited. Examination showed that there was some opisthotonus. The face, while full and well nourished, was pale and somewhat pasty. There was a fulness about the lips and under the eyes that gave a peculiar expression. The baby was given thyroid extract at first in doses of two grains each day; later two grains three times a day were given. Very shortly the appearance of the face began to change and the countenance became more human. This improvement continued until an apparently normal condition was reached and this has persisted for two years. The child's teeth came late, but at the present time it has the full complement for its age and enjoys perfectly good health. The only question is, shall the administration of thyroid be stopped or shall it be continued?

The Third Generation.—The child's grandmother has suffered for a long time from a chronic ailment with subacute exacerbations that had made her a confirmed, though rather a resigned invalid. She had an especially weak heart and her physician was often compelled to spend the night by her bedside in hourly expectation of death from heart failure. She believed herself an enigma, but considered that a fatal termination of her ailment by heart failure was inevitable sooner or later. She came on to New York to see her daughter and grandchild and so came under Dr. Perry's care. The grandmother's condition was very similar to that of her daughter. Her heart was very feeble and the circulation so poor that sensitiveness of the joint structures might have been expected. She was so weak that she was practically bedridden and had resigned herself to this state of affairs. She was put on thyroid extract and after a few weeks began to improve. She has a decided disinclination for the drug and feels that it produces a sort of intoxication in her after some time, but she continues to use it intermittently because of the good she feels it does her. In this case, after about three weeks' administration of the drug, symptoms of intolerance developed. These were more subjective than objective. There was a feeling of gastric uneasiness and cardiac discomfort. A sense of repletion that somewhat interfered with the appetite also developed and produced the impression that something was being taken that intoxicates. After an interval, however, of absence of the drug these symptoms disappeared. With regard to the child, if it had been

healthy, the drug would not have been administered. On the other hand, a normal child would surely not have tolerated the large doses of the drug, two grains three times a day, that were administered during the first two years of life.

Significance of the Condition and of the Medication.—Dr. Perry thought that these cases represent a hitherto undescribed symptom-complex, and that the use of thyroid is indicated only on empirical grounds. His success in the use of thyroid extract justifies him, however, in believing his diagnosis correct and seems to open up a new chapter in successful therapeutics. The subject is as yet only on trial, but what has been found is suggestive and indicative of important functional disturbances of ductless glands that have thus far not been suspected.

Thyroid Extract in Otology.—Dr. Joseph Kenefick said that in looking over a recent review of therapeutics in otology, he had noted that certain authorities recommended thyroid extract in otitis media and claimed to have obtained good results from its use. It is well known that otitis media has a special tendency to develop in persons suffering from the gouty diathesis. It is not improbable, then, that there are certain cases in which the affection occurs as the result of what might be called the thyroid diathesis, a diminution of the function of the thyroid gland.

Functional Thyroid Disturbance.—Dr. Edward M. Foote said that surgeons have reported cases in which the removal of a large portion of the thyroid has been followed not by complete, but by partial myxedema. It seems perfectly easy to conclude, therefore, that a disturbance of the function of the thyroid which limited its secretion to a considerable extent, might act in the same way as a removal of a large portion of the gland. Surgeons have found that the modified myxedema, incident to partial removal of the thyroid, can be rendered innocuous by the administration of thyroid extract. This would furnish at least a theoretical basis for the administration of the thyroid in the cases of diminution of function of the thyroid.

Action of Thyroid Extract.—Dr. Charles Schram said that there is as yet no absolutely sure scientific basis for the thyroid treatment. While it has been administered in a number of cases with reported good results, its administration has not met with general satisfaction. Dr. Schram has used it particularly in cases of obesity and, like most others, he found that it did help in the reduction of the weight, but as soon as the administration of the drug is stopped the patients rapidly regain their weight. Exercise accomplishes the same beneficial purpose of reducing the weight and provides the patients at the same time with habits of life that enable him, or her, to keep the weight from rising too high again.

Iodothyrim.—Dr. J. Hilton Waterman said that in cases of obesity in which thyroid extract is used it is not uncommonly found that irregularity of the heart action develops. When there

is much fatty infiltration this cardiac irregularity is so marked as to constitute an absolute contra-indication to the use of the drug. Iodothyrim, one of the supposed active principles of the thyroid gland, is much better borne, as a rule, than the crude extract, but its results in the reduction of the weight are not so marked. As a rule the use of thyroid in any form for obesity is satisfactory only for the time being.

Thyroidism.—Dr. Howard Lilienthal said that the study of the ductless glands is undoubtedly the most important subject of the new century. Thus far pathological conditions alone have been considered. It is possible, however, that there may also be functional disturbances. In the cases described, however, there is a question whether there may not have been a failure of the gland to develop to its normal extent and consequent lack of function with a condition of unstable equilibrium of nutrition. With regard to the symptoms of thyroidism and of intolerance of the remedy, Dr. Lilienthal noted in one case in which he employed it the occurrence of glycosuria. This symptom was not present when the drug was first administered, but developed during its administration and persisted afterward to some degree.

Supposed Chlorotic Conditions.—Dr. Perry in closing the discussion said that the cases which he has noted resemble chlorosis not a little, especially when they occur in young women. It is well, then, for the practitioner when anemia is present to note the condition of the suprasternal space and, if it is not depressed, to bear in mind the possibility of thyroid being useful in the treatment of the case. It is wonderful how much objection there seems to exist in the minds of physicians to the administration of thyroid. More than once when his patients have gone to a distance, Dr. Perry has asked them to go to their physician and have him prescribe for them thyroid extract, as it had been used before. Almost as a rule, physicians refused after a certain time to take the responsibility of further continuance of the remedy. The most remarkable thing in Dr. Perry's series of cases was the absolute tolerance for the thyroid extract shown by the patients.

Graduated Dosage.—Dr. Perry said that all patients are not able to stand the dosage suggested in the two cases described. In a recent case a young woman came to him in an excited condition with a feeble pulse over 100. She was told to take two five-grain tablets of thyroid extract per day. Within a week she came back so agitated as to be scarcely able to speak. Her pulse though weak was running furiously. The thyroid extract was stopped and when its effect had passed off, she was directed to take half a tablet twice a day, but with the same result. The doses were made smaller and smaller until, finally, only $\frac{1}{18}$ of a tablet was given twice a day. She gradually became accustomed to this and the dose was increased to two tablets a day. This patient was intensely sensitive to the action of thyroid extract, but the cure of her condition was rapid.

Thyroid Extract as a Heart Tonic.—Dr. Perry says that for cases of feeble heart there is no heart tonic that is so effective as thyroid extract. After digitalis, strophanthus and other recognized heart tonics and stimulants have been used without success, Dr. Perry has employed thyroid extract and found it to do good. In cases of weak heart action without definite valvular lesion he now uses it regularly in preference to other heart tonics and invariably gets good results. In the weak heart that often occurs with obesity he had found thyroid extract especially useful. It controls the tendency to rapidity of heart action after exertion and adds greatly to the comfort of the patient. With regard to the use of the thyroid extract in obesity a certain selection of cases for the treatment should be made. Many cases of obesity are accompanied by anemia, general systemic feebleness and a weak heart. These cases invariably do well on thyroid extract.

SOCIETY OF DERMATOLOGY AND GENITO-URINARY SURGERY.

Stated Meeting, Held October 11, 1901.

Case of Keloid.—Dr. F. Cabot presented the case of F. V., colored, aged twenty-seven years, male, native of Cuba, cigarmaker, who noticed in 1894 for the first time a lesion on the right cheek, which he describes as smooth and hard, of the size of a bean, painless and slightly elevated. This lesion was cut out by a Cuban surgeon in 1896, but soon returned, and is now the size of thumb. Quite a number of other lesions of similar nature are now found on the chest and various parts of the trunk. There is no history of local injury, except perhaps friction in connection with the lesion on the right elbow. No evidences of syphilis, past or present, are present.

In discussion Dr. Levisur said that the colored race is particularly prone to the development of true keloid. Some authors claim that the differential diagnosis made by the microscope shows that in true keloid the papillæ of the skin are preserved, while in spurious keloid or in a hypertrophied scar they are absent. As far as treatment is concerned the injection of thiosinamine has been recommended. He had not had any success with electrolysis, although he had tried it in a number of cases. Excision is risky, because as a rule the tumor reappears. At one time continuous pressure by aid of bandages, or a pelotte, was recommended by French authors. This method of treatment was given a trial in two cases without success. The keloid developing in or around a syphilitic scar promptly disappears under energetic antisyphilitic treatment.

Dr. Lapowski said that good results have been obtained from the use of thiosinamine. It might be injected directly into the keloidal tissue. Regarding syphilitic keloid, he had treated a case in which the injection of calomel and large doses of potassium iodide had little or no effect.

Dr. McGowan said that it is evident that if

thiosinamine is injected directly into the keloidal tissue much more rapid results are produced than if the injection is made under the healthy skin for its general effect. He had not seen any great benefit from it.

Dr. Whitehouse had not obtained good results with thiosinamine, but had successfully employed 10 per cent. oleate of mercury and mercurial plaster. Occurring in the white race the various remedies and methods of treatment are worth a trial; but if in the negro it is preferable to leave the affection alone.

Dr. Lusk had tried thiosinamine in 11 cases, internally and hypodermatically, between the shoulders, around and in the keloid. At first there was apparent improvement in some cases, but after two to six months' treatment he failed to find any good results from its use. He succeeded in relieving the irritability by protecting the parts from pressure and applying a coating of collodion containing 10 to 15 per cent. of belladonna.

Case for Diagnosis.—Dr. Green presented this case. The patient was seen about two months ago, when her husband asked him to examine her. At first a diagnosis of eczema was made and a zinc and camphor ointment was given to relieve the itching. The eruption became worse. Changing the diagnosis later to psoriasis, arsenic and an ointment consisting of Lasar's paste with oil of birch tar, one dram to the ounce, was prescribed. She still became worse. Then iodide of potash was given, after which the patient began to improve. A salve of white precipitate ointment was also given. The improvement continued, and the spots almost entirely disappeared. The patient disappeared from observation for four weeks, after which time she presented herself with the eruption as seen at present. The case was puzzling, because it certainly had the features of eczema, psoriasis and syphilis, but did not improve with treatment for eczema or psoriasis, but yielded to antisyphilitic remedies.

Dr. Levisur considered the case one of seborrheic eczema. Dr. Lapowski considered it syphilis combined with seborrheic eczema, the syphilis predominating. Dr. McGowan was inclined to regard the case as psoriasis, as the brawny, dry, scaly appearance that is found in seborrheic eczema does not seem to be present. The flexor and extensor surfaces are involved, and psoriasis does not limit itself exclusively to the extensor surfaces. It has been in existence off and on for twenty years. He advised a course of arsenic and local application of salves ordinarily used in psoriasis. Mercury is beneficial in psoriasis, but he was confident the psoriatic treatment would accomplish as much as the antisyphilitic.

Dr. Lusk said that he had had a number of cases similar to this, chronic psoriasis appearing more or less continuous for a number of years, and upon that a papular syphilide. Dr. Whitehouse thought it a difficult matter to give a defi-

nite opinion in regard to the case without a careful examination by daylight. He believed the patient to be syphilitic, but at the same time could not conceive of a syphilitic eruption coming and going and being present for twenty years. There is some other eruption subjoined.

Case of Lupus Vulgaris Exuberans.—Dr. Levisieur presented the case of a girl, twenty-four years of age, who consulted him last winter in regard to an ulcerating lupus vulgaris of the entire nose and neighboring parts of both cheeks of eight years' standing. She had been treated by the ordinary methods in several dispensaries and hospitals. The affection had destroyed both *alæ nasi*, and there were deep ulcerations partly covered by thick brown crusts partly exposed and discharging freely. The whole nose was mushy, and ready to break down at any moment. After constructing a Finsen apparatus with lenses which he had brought from abroad, he began treatment, using a self-focusing stereopticon lamp of 2,000 candle-power and 15 amperes. The patient had 45 sittings of an hour each, at first every day, and then at intervals of one, two, and finally three days. No improvement was noticed until two weeks after the last sitting when the ulcerations began to heal and the skin began to become hard. Since treatment with the Finsen light during the summer is very inconvenient (the sunlight in the open air is generally used abroad) he destroyed some of the remaining lupus nodules by aid of electrolysis. The result, particularly from a cosmetic standpoint, was certainly remarkable, even if the affection should recur later on. It equals the success of the cases which he had seen in Paris the summer before last. They were sent over from Copenhagen and put side by side with lupus cases treated by excision, transplantation, cauterization, scraping, etc., demonstrating the superiority of the new treatment.

Dr. McGowan said that Dr. Pusey of Chicago has reported very excellent work in the treatment of lupus with the X-ray. The speaker had tried the X-ray in cases of carcinoma referred to him with good results. Dr. Levisieur said that the action of the X-ray and the Finsen light is very similar. The danger of producing a dermatitis or sloughing with the X-ray must always be considered. Dr. McGowan said that since low-pressure tubes were obtainable there is less danger from gangrene. There is no doubt but that the results from the X-ray or Finsen light are far superior to anything preceding. Dr. A. B. Johnson said that the previous speaker had stated that it has been found that high-pressure tubes are more apt to produce X-ray burns than tubes of low pressure. If by that is meant that high-vacuum tubes are more likely to produce burns than are low-vacuum tubes, he believes him to be mistaken, for the contrary is the fact in his experience. It is impossible to explain why this should be so, yet such is the experience of those whose opportunities have been greatest in this field. His own experience in the detection of calculi in the kidney, where a tube of low vacuum

must be used in order to get the best results, indicates that exposures with such a tube not more than one foot from the skin will produce dermatitis in a small proportion of cases, provided the aggregate time of exposure is fifteen minutes or more at any one sitting. Such dermatitis may be avoided by placing the tube not nearer than eighteen inches from the skin, limiting the time of exposure to ten minutes, or less, and refraining from a second exposure for from ten days to two weeks. The utility of protective measures, such as cleaning the skin, greasing the skin, or the use of a grounded, thin metal screen between the tube and the body of the patient, is doubtful. While with good apparatus it is not hard to show the presence of a stone of considerable size in the kidney of a thin individual, in the case of large, stout persons the difficulties are much greater. It is not sufficient to be able to show the presence of a stone of considerable size; we desire, also, to be able to establish a negative diagnosis. It is desirable that the stomach and large intestine be empty at the time the exposure is made. Experience in the examination of X-ray negatives of the kidney region is necessary to enable one to say whether a given picture shows sufficient detail to establish a negative diagnosis.

BOOK REVIEWS.

THE DIAGNOSTICS OF INTERNAL MEDICINE. By GLENTWORTH REEVE BUTLER, A.M., M.D., Attending Physician to the Methodist-Episcopal Hospital (Seney), Brooklyn. D. Appleton & Co., New York.

HERETOFORE the works of Vierordt and Musser have reigned supreme in the field of internal diagnosis, and excellent books they both are. A new claimant for honors is here presented in this book of Dr. Butler's and it may be at once conceded that it has at the first leap put itself on a par with the best of American text-books—Musser—if it does not surpass it.

Coming as it does from a heretofore little-known author, this is all the more surprising, but it is just such kind of surprises that bring anew into prominence the truth that the masters of medical science are not those who are continuously blowing their horns, in season and out of season, but that many a quiet worker is busily gathering excellent material and arranging it for his fellow workers.

The work before us varies in some respects from others of its kind. We do not know of any recent work on diagnostics which deals so exhaustively and at the same time so practically with the science and art of the examination of the patient. Its thoroughness and lucidity are striking attributes and the student of medicine of today is to be congratulated that he here has a work of such finish to aid him in the gaining of the character of the diseased process under consideration.

Another feature, which is perhaps not as desirable, and yet is a necessary part of a work of this kind, is the condensed series of descriptions of diseased processes. Had not this condensation been done in the able manner in which it has, this portion would partake of the character of many manuals of medicine, but in its present concise and yet comprehensive form this criticism does not avail and the author shows evidence of rare discrimination in the use of striking symptoms in description. Etiology, symptoms and differential diagnosis are alone considered. Therapy is not mentioned.

A review of this work would not be complete without a word as to several chapters which have been contributed by other workers. These are excellent aids to the book and supplement in a masterly manner the central body of the text. Chapters by Drs. Shaw, Webster, DeForest and others are excellent. That on nervous diseases by Drs. Jelliffe and Bonar is sufficient and yet comprehensive, the authors' central idea of the inclusion of all necessary details being well carried out.

The illustrative features constitute a veritable *tour de force*, they are nearly all derived from photographs and the author and publisher are to be congratulated on their recognition of the value of good illustrations, even though they may be found somewhat striking to the general onlooker. The publisher's part in the work is on the same high level that has always been the pride of this old New York house. We predict for Dr. Butler's work a great success and a well-deserved one.

STRENGTH FROM EATING. HOW AND WHAT TO EAT AND DRINK TO DEVELOP THE HIGHEST DEGREE OF HEALTH AND STRENGTH. By BERNARR MACFADDEN. Physical Culture Publishing Company. New York.

IT IS not often that an anomaly of this type strays into the reviewer's hands and when it does, were it not for calm effrontery of its supreme ignorance of matters hygienic and sensible, the reviewer would pass it by with a smile.

If there is a type of "yellow journal" hygienic science, such a work typifies it. Sensationalism and fulsome hyperbole are its main attributes and were it not for a vein of sense discernible here and there, even the uneducated reader, for whom the book is specially prepared, would not take the trouble to read it.

If a little knowledge is a dangerous thing, one wonders how dangerous is none at all. If the dear, discriminating public are told that "even soups must be submitted to a certain amount of *chewing* in order to mingle it with saliva" one wonders what rare and wonderful physiological processes are necessary to get the air in the lungs.

This work taken as a whole is very amusing. It should be read by a medically trained man to appreciate what the public is taught regarding the processes of digestion by such manuals. He will no longer wonder why Sixteenth Century ideas are still in the minds of the people.

TRAITÉ DE MÉDECINE ET DE THÉRAPEUTIQUE. Publie sous la Direction de MM. P. BROUARDEL et A. GILBERT; Tome Huitième. Maladies de Pleures et du Mediastin, Maladies de l'Axe Cérébro-spinal. Par MM. LANDOUZY, M. LABBÉ, GALLIARD, MENETRIER, BOINET, ACHARD, BALLET, P. MARIE, LÉVI, KLIPPEL. J. B. Baillière et Fils, Paris, France.

THE eighth volume of this masterly treatise, treating of diseases of the pleura, the mediastinum and the cerebro-spinal axis, comes as a welcome addition to those that have gone before. The discussion of the diseases of the respiratory tract is here completed and that of the nervous system begun.

There is little that is new in the author's treatment of pleural conditions; the subject of the cyto-diagnosis of pleural exudates is perhaps an exception to this treatment, but in the chapter on mediastinal diseases there are a number of interesting observations by Boinet.

The opening chapters on nervous diseases promise much. The subject of aphasia is taken up by Ballet; P. Marie discusses hemiplegia and paraplegia and Achard, apoplexy and coma, delirium, convulsions contractures, tremor, vertigo, headaches, and tropho- and vaso-neuroses. Cerebral pathology is treated by P. Marie and M. Klippel. Thus many of the foremost neurologists of France are engaged in this volume and their work justifies their reputation.

BOOKS RECEIVED.

The MEDICAL NEWS acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the MEDICAL NEWS will shortly appear.

A CIVILIAN WAR HOSPITAL. Being an Account of the Work of the Portland Hospital, and of Experience of Wounds and Sickness in South Africa, 1900. By the Professional Staff. 8vo, 341 pages. Illustrated. Longmans, Green & Co., New York.

DISEASES OF THE UPPER RESPIRATORY TRACT, the Nose, Pharynx and Larynx. By Dr. P. Watson Williams. Fourth Edition. 8vo, 436 pages. Illustrated. Longmans, Green & Co., New York.

LABORATORY COURSE IN BACTERIOLOGY. By F. P. Gorham, A.M. 12mo, 198 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.

PATHOLOGICAL TECHNIQUE. By Drs. F. P. Mallory and J. H. Wright. Second Edition. 8vo, 432 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.

A TEXT-BOOK OF OBSTETRICS. By Dr. B. C. Hirst. Third Edition. 8vo, 873 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.

A MANUAL OF THE PRACTICE OF MEDICINE. By Dr. G. R. Lockwood. Second Edition. 8vo, 847 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. By Dr. John V. Shoemaker. 8vo, 892 pages. Illustrated. Fourth Revised Edition. D. Appleton & Company, New York.

ATLAS AND EPITOME OF SPECIAL PATHOLOGIC HISTOLOGY. By Dr. H. Dürk. Edited by Dr. L. Hektoen. Vol. II. 12mo, 192 pages. Illustrated. W. B. Saunders & Company, Philadelphia and London.